PLANTÆ

ASIATICÆ RARIORES.

VOLUME I.

SHOUT
SHARE
IT

PLANTÆ
ASIATICÆ RARIORES;

OR,

DESCRIPTIONS AND FIGURES
OF A SELECT NUMBER OF
UNPUBLISHED EAST INDIAN PLANTS,

BY

NATHANIEL WALLICH, M.&PH.D.

KNIGHT OF THE ROYAL DANISH ORDER OF DANNEBROG:

FELLOW OF THE ROYAL SOCIETIES OF LONDON AND EDINBURGH; CORRESPONDING MEMBER OF THE ROYAL INSTITUTE OF FRANCE; FELLOW OF THE LINNEAN AND GEOLOGICAL SOCIETIES OF LONDON; MEMBER OF THE ROYAL SOC. OF SCIENCES, AND THE ROYAL MEDICAL SOC. OF COPENHAGEN, THE ACAD. NAT. CURIOS. OF BONN, THE ASIAT., AGRIC. AND MED. SOCIETIES OF CALCUTTA, THE ROYAL ASIAT. SOC. OF LONDON, THE SOC. NAT. CURIOS. OF MOSCOW; FOREIGN MEMB. OF THE PHYSIOGRAPH. SOC. OF LUND, AND OF THE HORT. SOC. OF LONDON; CORRESPONDING MEMB. OF THE MUS. D'HIST. NAT. OF PARIS, OF THE ACAD. OF NAT. SCIENC. OF PHILAD., THE SOC. OF ARTS AND SCIENCES OF BATAVIA, THE ECON. SOC. OF THE PHILIPPINES; HONORARY MEMB. OF THE HELVETIC SOC. OF NAT. SCIENC., THE ROYAL BOT. SOC. OF RATISBON, THE LIT. SOC. OF MADRAS, THE AGRIC. SOC. OF ST. HELENA, &c. &c.

IN THE BENGAL MEDICAL SERVICE OF THE HONOURABLE EAST INDIA COMPANY, AND SUPERINTENDANT OF THE BOTANIC GARDEN AT CALCUTTA.

VOL. I.

CONTAINING

PLATES I.—C.

Bought at 105.00
listed by Koehler 6-3-31
at 820 mark or $196.80

Mo. Bot. Garden,
1896.

LONDON:

TREUTTEL AND WÜRTZ, TREUTTEL JUN. AND RICHTER, FOREIGN BOOKSELLERS TO THE KING, 30, SOHO SQUARE:
PARIS; TREUTTEL AND WÜRTZ, RUE DE LILLE: STRASBURGH; TREUTTEL AND WÜRTZ, GRANDE RUE.

1830.

ALERE FLAMMAM.

RICHARD TAYLOR,
PRINTER TO THE UNIVERSITY OF LONDON,
RED LION COURT, FLEET STREET.

MDCCCXXX.

TO

THE HONOURABLE

THE CHAIRMAN, DEPUTY CHAIRMAN,

AND

COURT OF DIRECTORS

OF

THE UNITED EAST INDIA COMPANY,

THIS WORK,

WHICH OWES ITS EXISTENCE TO THE MUNIFICENCE

WITH WHICH THEY HAVE ENCOURAGED AND SUPPORTED

BOTANICAL SCIENCE IN INDIA,

IS DEDICATED,

AS A HUMBLE TRIBUTE

OF UNCEASING GRATITUDE AND RESPECT,

BY

THE AUTHOR.

PREFACE.

In presenting this Work to the Public, I feel myself called upon to notice briefly the circumstances out of which it has arisen, and the sources whence the materials of which it is composed have been derived.

I went to India in the year 1807, in the capacity of Surgeon to the Danish settlement of Serampur in Bengal, and immediately on my arrival had the advantage of becoming personally acquainted with the late Dr. Roxburgh, then Superintendant of the Honourable Company's Botanic Garden at Calcutta. I continued to benefit by the friendship of that distinguished botanist until 1812, when the state of my health obliged me to proceed to the Mauritius. About a year after my return to Bengal, after an absence of some months, I was honoured by a commission in the Company's Medical Service; and on the departure for Europe of my late friend Dr. Hamilton, the successor to Dr. Roxburgh, in the beginning of 1815, I was nominated to the temporary charge of the Garden at Calcutta; an appointment which the Honourable Court of Directors were pleased to confirm permanently, at the recommendation of the late Sir Joseph Banks and Dr. Fleming, and of Mr. Colebrooke.

The opportunities I have enjoyed for prosecuting the study of Indian botany during the subsequent thirteen years, until the date of my departure for Europe, will be fully appreciated by those who are acquainted with the character and objects of the splendid Establishment over which I was placed. The Botanic Garden at the time of my appointment had been in existence nearly thirty years; during which period, by the labours of its enlightened founder, the late Colonel Kyd, and by the scientific zeal and exertions of the late Drs. Roxburgh and Hamilton, and of Mr. Colebrooke, it had been enriched to an extent, which requires no other proof than that afforded by the Hortus Bengalensis, printed in 1812. The native plants contained in that publication had been fully described in Dr. Roxburgh's manuscript Flora Indica, a work of sterling merit, illustrated by nearly 2000 original drawings, made by native artists, of which copies exist in the Library of the Honourable Company at the India House.

In 1820 I made a botanical excursion into Nipal, the riches of which country had already been opened to me by the liberal contributions of my highly esteemed friend the Honourable Edward Gardner. After continuing there a year, I returned to the Garden, with the intention of publishing an account of the plants which I had collected; but I was prevented at the time by a severe illness, which forced me again to seek benefit from a sea voyage. On this occasion I visited the islands of Penang and Singapur, and some other places in the Straits of Malacca; and after an absence of five months I returned to Calcutta, having reaped a rich harvest of the productions of those countries.

In 1825 I was deputed by the Government to inspect the timber forests of the western provinces of Hindustan, when I had a favourable opportunity of examining and collecting the plants of the kingdom of Oude, the province of Rohilcund, the valley of Deyra, &c.

My last journey was in 1826 and 1827, when I accompanied a mission from the Supreme Government of British India to the Court of Ava. I ascended the Irawaddi as far as Ava, and visited the mountains in the neighbourhood of that capital; and proceeded afterwards to the lately acquired territories on the coasts of Martaban and Tenasserim.

This short enumeration of my principal excursions will serve to point out the sources from which a great proportion of my collections was derived. But besides these opportunities, of which I availed myself personally, I had all the advantages belonging to the Institution over which I presided, and which for extent and importance I believe to be unrivalled. These consisted in the cooperation of many distinguished individuals residing in different parts of India, who were in the constant habit of transmitting every object of interest which the vegetable kingdom presented to their notice. I discharge a most pleasing duty in recording here the names and services of the late Sir Stamford Raffles and Mr. Jack, who contributed plants from Penang, Singapur, and Bencoolen; of the Honourable E. Gardner, the Resident, and the late Mr. Robert Stuart, Assistant Resident in Nipal; of Sir Robert Colquhoun, Baronet, at Kamaon; of the Rev. Dr. Carey; of Major-General Hardwicke; of Mr. J. F. Royle, Superintendant of the Botanic Garden at Saharunpur; of Dr. Govan, Captains Webb and Gerard, and Mr. J. S. Gerard, from the mountains of Western Hindustan and the Himalaya. Besides the riches which flowed in from these sources, I derived others from the labours of a number of plant-collectors connected with the Garden, who were stationed in various parts of India, such as Sillet, Nipal, Kamaon, Penang, &c. It cannot excite surprise, therefore, that from these combined advantages there should result ultimately an extensive collection of the plants of India. The number of indigenous plants cultivated in the Garden was greatly increased in the course of a few years, and my herbarium ultimately amounted to upwards of 8000 species, comprising a vast number of duplicates. Numerous selections from it were successively transmitted to England, and deposited in the Museum of the East India Company, the Banksian Herbarium, that of the late Sir J. E. Smith, of Mr. Lambert, and various others throughout Europe. Many of the plants have been published in the works of Professors DeCandolle and Hooker, Dr. Greville, in the Botanical Magazine and Register, &c.; as well as by myself in Roxburgh's Flora Indica, the Asiatic Researches, the Linnean Transactions, and in the Tentamen Floræ Napalensis Illustratæ.

In order to place before the reader the relative position of the places whence the plants were obtained, especially with reference to those described in my present Work, a Map will form part of the concluding volume, accompanied by such illustrations as may be necessary in a botanical point of view.

My health on my return from the Burmese country had now become so impaired from repeated attacks of illness, that it was deemed indispensable I should visit Europe for my recovery; and in 1828 permission was granted me to leave for a time the duties of my situation, and to take my collections with me, in order that I might have the honour of delivering them in person to the Court of Directors. That enlightened Body, with a munificence never equalled, and which has already been appreciated and gratefully acknowledged, not only in this country, but throughout Europe, immediately directed me to proceed to the distribution of the duplicates among the principal public and private museums in Europe and America. They were pleased to order a similar distribution of the herbariums of continental Indian plants in their Museum, made by Drs. Patrick Russell, Roxburgh, and Hamilton, the Tranquebar Missionaries, the late Mr. Finlayson, Mr. Wight, and myself. The assistance which I have already received in the laborious details connected with the above distributions, has placed me under the greatest obligations to some of the most eminent botanists of Europe. I have been honoured by the personal aid of Mr. Brown, Professors Kunth, Hooker, Graham, and Lindley, M. Alphonse DeCandolle, Mr. Arnott, Mr. Prescott, and Mr. Bentham.

Besides the homage which has been paid to the Company in many publications for their princely liberality in thus affording these ample means for the diffusion of a knowledge of the botany of the East Indies, a still more effectual method of testifying a sense of the general obligation they have conferred upon the scientific world, has been adopted by a number of celebrated Botanists, who have undertaken to publish Monographs of the more extensive and interesting families, thereby powerfully contributing to the completion of a scheme so truly worthy of the British East India Company.

It is a source of pride for me to introduce here the names and separate labours of those who have thus zealously come forward to advance the interests of science.

Mr. ARNOTT has undertaken the publication of the families of Ranunculaceæ, Nymphæaceæ, Papaveraceæ, Droseraceæ, Acerineæ, Tamariscineæ.
Mr. BENTHAM : Caryophylleæ, Labiatæ, Lineæ, Melastomaceæ, Memecyleæ, Alangieæ, Onagrarieæ, Salicarieæ, Scrophularineæ, Orobancheæ.
Prof. BESSER of Crzmieniec : Artemisia.
M. ADOLPHE BRONGNIART of Paris : Celastrineæ, Rhamneæ.
Mr. BROWN : Annonaceæ, Capparideæ, Rubiaceæ, Gramineæ.
M. CAMBESEDES of Paris : Hippocraticeæ, Sapindaceæ, Ternstrœmiaceæ.
Prof. CHOISY of Geneva : Guttiferæ, Hypericineæ, Convolvulaceæ.
Prof. DECANDOLLE of Geneva : Araliaceæ, Umbelliferæ, Saxifrageæ, Cunoniaceæ, Caprifoliaceæ, Loranthеæ, Valerianeæ, Dipsaceæ, Compositæ, Polemoniaceæ, Ebenaceæ, Sapoteæ, Styracineæ, Sesameæ, Gentianeæ, Aristolochieæ.
M. ALPHONSE DECANDOLLE of Geneva : Flora Burmanica, Campanulaceæ, Bignoniaceæ, Myrsineæ, Urticeæ.
M. DUVAU of Paris : Pedicularis, Veronica.
Prof. GRAHAM : Leguminosæ.
Dr. GREVILLE : Algæ, Filices.
Mr. HAWORTH : Crassulaceæ.
Prof. HOOKER : Myristiceæ, Filices, Musci.
Prof. ADR. JUSSIEU of Paris : Tiliaceæ, Malpighiaceæ, Rutaceæ, Meliaceæ.
Prof. KUNTH of Berlin : Bombaceæ, Büttneriaceæ, Sterculiaceæ, Dombeyaceæ, Malvaceæ, Elaeocarpeæ, Terebinthaceæ, Cambretaceæ, Verbenaceæ.
Mr. LAMBERT : Coniferæ.
Prof. LEHMANN of Hamburgh : Potentilla, Boragineæ, Primulaceæ.

Prof. **Lindley**: Rosaceæ, Amentaceæ, Orchideæ.
Prof. **Von Martius** of Munich: Amaranthaceæ, Palmæ, Restiaceæ.
Prof. **Meisner** of Bâle: Begoniaceæ, Polygoneæ.
Prof. **Nees von Esenbeck** of Breslau: Acanthaceæ, Solanaceæ, Laurineæ.
Mr. **Prescott**: Cyperaceæ.
Prof. **Richard** of Paris: Menispermeæ, Myrtaceæ, Asphodeleæ, Smilaceæ.
Prof. **Rœper** of Bâle: Euphorbiaceæ.
M. **Seringe** of Geneva: Salix.
Prof. **Schultes** of Landshut: Various miscellaneous genera.
Prof. **Sprengel** of Halle: Berberideæ, Cruciferæ, Polygaleæ, Ericeæ, Apocyneæ, Asclepiadeæ.

On the above cooperation, exhibiting an unparalleled instance of zeal and liberality in the promotion of a common cause, I can offer no comment; nor can I adequately express the gratitude which I feel towards those, who have thus generously relieved me from some of the most difficult parts of my labour.

The present Work consists of a selection of plants made chiefly from a series of 1200 drawings, executed under my direction by Indian artists, at the Calcutta Garden, and on my various journeys; and this will at once explain any imperfections in the figures which accompany it. I am very far from aspiring to any other claim than that of having endeavoured to perform the duties of a faithful pioneer and collector in the field of Indian Botany; for I am too sensible of my deficiency, to suppose for a moment that any Work of mine can be considered comparable to those which have appeared in recent times, so admirable for their scientific accuracy and the elaborate beauty of their detail. When I originally left Europe, I had had very little opportunity of acquiring that precise knowledge of the Natural System, which has now been made so familiar to the student of botany; and in my remote situation in India I was naturally deprived of an intercourse with those who are justly looked upon in Europe as the lights of modern botanical science. In India those who cultivate natural history are necessarily thrown on their own unaided resources; and if I shall be judged not to have failed altogether in the use of those enviable opportunities that have fallen to my lot as the servant of a Government which so liberally extended its patronage to me, to which I owe not only the prosperity, but in many respects the happiness of my life, the warmest wishes of my heart will have been most abundantly realized.

But while I have thus frankly avowed the defects under which this Work labours, I claim for it those merits, which the splendid talents of several friends have imparted to it; and to them the world will do ample justice. To Mr. Brown, who has been so justly styled BOTANICORUM PRINCEPS, I owe contributions which could have been derived from no other source. To Professor Lindley I owe many obligations; and I can truly say, that but for the counsel and unremitting assistance of this most valued friend I could not have undertaken or prosecuted my Work. From Mr. Bentham I have also received many favours, especially the interesting Synopsis of the Indian Labiatæ.

N. WALLICH.

London, September, 1830.

TABLE

OF THE

PLATES OF THE FIRST VOLUME,

IN NUMERICAL ORDER.

PLATE		PAGE
1 2	Amherstia nobilis	1
3	Sterculia populifolia	3
4	Hibiscus Lindlei	4
5	Anneslea fragrans	5
6	Phaseolus fuscus	6
7	Caralluma crenulata	6
8	Caralluma fimbriata	7
9	Curcuma Roscoeana	8
10	Curcuma cordata	8
11 12	Melanorrhoea usitata	9
13	Hiraea hirsuta	13
14	Cardiospermum canescens	14
15	Abelia triflora	14
16	Matonia pectinata	16
17	Cometes surattensis	17
18	Cometes abyssinica	18
19	Impatiens reticulata	19
20	Clematis subpeltata	19
21	Eranthemum cinnabarinum	20
22	Dillenia scabrella	20
23	Dillenia ornata	21
24	Gastrochilus pulcherrima	22
25	Gastrochilus longiflora	22
26	Urena speciosa	23
27	Kaempferia elegans	24
28	Justicia guttata	24
29	Dendrobium amplum	25
30	Podocarpus latifolia	26
31	Ruellia alata	26
32	Knoxia plantaginea	27
33	Aphanochilus polystachyus	27
34	Aphanochilus flavus	28
35	Liparis longipes	31
36	Eria paniculata	32
37	Uraria cordifolia	33
38	Coelogyne Gardneriana	33
39	Dendrobium formosum	34
40	Dendrobium densiflorum	34
41	Aconitum ferox	35
42	Ruellia gossypina	38
43	Convolvulus atropurpureus	38
44	Bamia crinita*	39
45	Centranthera hispida	39
46	Quercus spicata	40
47	Mucuna macrocarpa	41
48	Sphaeropteris barbata	42
49	Echites rhynchosperma	43
50	Chirita grandiflora	43
51	Hibiscus macrophyllus	44
52	Allantodia Brunonianna	44
53	Coelogyne maculata	45
54	Coelogyne Wallichiana	46
55	Zingiber barbatum	46
56	Kaempferia candida	47
57	Curcuma parviflora	47
58	Amomum corynostachyum	48
59	Sterculia versicolor	48
60	Tephrosia coccinea	49
61	Viburnum foetidum	49
62	Cyrtotropis carnea	50
63	Phaseolus rostratus	50
64	Eriolaena Candollii	51
65	Boottia cordata	52
66	Justicia venusta	53
67	Cirrhopetalum Wallichii	53
68	Otochilus fusca	54
69	Bolbophyllum cylindraceum	54
70	Trias oblonga	55
71	Aescynanthus ramosissima	55
72	Chirita macrophylla	56
73	Ceropegia longifolia	56
74	Roylea elegans	57
75	Hoya fusca	68
76	Argyreia festiva	68
77	Melhania Hamiltoniana	69
78	Pongamia atropurpurea	70
79 80	Bombax insigne	71
81	Wightia gigantea	71
82	Barleria polytricha	72
83	Ruellia Neesiana	73
84	Apostasia odorata†	75
85	Apostasia nuda	76
86	Iris decora	77
87	Corylus ferox	77
88	Oxyspora paniculata	78
89	Myristica sphaerocarpa	79
90	Myristica amygdalina	79
91	Piper ribesioides	79
92	Justicia palatifera	80
93	Justicia ventricosa	80
94	Desmodium pendulum	81
95 96	Bignonia multijuga	81
97	Begonia pedunculosa	82
98	Clematis grata	83
99	Thomsonia napalensis	83
100	Polygala arillata	84

* This name should be altered to *Abelmoschus crinitus:* see note to page 39.

† This name should be altered to *Apostasia Wallichii:* see page 76.

TABLE

OF THE

PLATES OF THE FIRST VOLUME,

IN ALPHABETICAL ORDER.

	PAGE	PLATE
Abelia triflora	14	15
Aconitum ferox	35	41
Aescynanthus ramosissima . .	55	71
Allantodia Brunonianna . . .	44	52
Amherstia nobilis	1	1 2
Amomum corynostachyum . .	48	58
Anneslea fragrans	5	5
Aphanochilus flavus	28	34
Aphanochilus polystachyus . .	27	33
Apostasia nuda	76	85
Apostasia odorata*	75	84
Argyreia festiva	68	76
Bamia crinita†	39	44
Barleria polytricha	72	82
Begonia pedunculosa	82	97
Bignonia multijuga	81	95 96
Bolbophyllum cylindraceum .	54	69
Bombax insigne	71	79 80
Boottia cordata	52	65
Caralluma crenulata	6	7
Caralluma fimbriata	7	8
Cardiospermum canescens . .	14	14
Centranthera hispida	39	45
Ceropegia longifolia	56	73
Chirita grandiflora	43	50
Chirita macrophylla	56	72
Cirrhopetalum Wallichii . . .	53	67
Clematis grata	83	98
Clematis subpeltata	19	20
Coelogyne Gardneriana . . .	33	38
Coelogyne maculata	45	53
Coelogyne Wallichiana . . .	46	54
Cometes abyssinica	18	18
Cometes surattensis	17	17
Convolvulus atropurpureus . .	38	43
Corylus ferox	77	87
Curcuma cordata	8	10
Curcuma parviflora	47	57
Curcuma Roscoeana	8	9
Cyrtotropis carnea	50	62
Dendrobium amplum	25	29
Dendrobium densiflorum . . .	34	40
Dendrobium formosum . . .	34	39
Desmodium pendulum . . .	81	94
Dillenia ornata	21	23
Dillenia scabrella	20	22
Echites rhynchosperma . . .	43	49
Eranthemum cinnabarinum . .	20	21
Eria paniculata	32	36
Eriolaena Candollii	51	64
Gastrochilus longiflora . . .	22	25
Gastrochilus pulcherrima . . .	22	24
Hibiscus Lindlei	4	4
Hibiscus macrophyllus . . .	44	51
Hiraea hirsuta	13	13
Hoya fusca	68	75
Impatiens reticulata	19	19
Iris decora	77	86
Justicia guttata	24	28
Justicia palatifera	80	92
Justicia ventricosa	80	93
Justicia venusta	53	66
Kaempferia candida	47	56
Kaempferia elegans	24	27
Knoxia plantaginea	27	32
Liparis longipes	31	35
Matonia pectinata	16	16
Melanorrhoea usitata	9	11 12
Melhania Hamiltoniana . . .	69	77
Mucuna macrocarpa	41	47
Myristica amygdalina	79	90
Myristica sphaerocarpa . . .	79	89
Otochilus fusca	54	68
Oxyspora paniculata	78	88
Phaseolus fuscus	6	6
Phaseolus rostratus	50	63
Piper ribesioides	79	91
Podocarpus latifolia	26	30
Polygala arillata	84	100
Pongamia atropurpurea . . .	70	78
Quercus spicata	40	46
Roylea elegans	57	74
Ruellia alata	26	31
Ruellia gossypina	38	42
Ruellia Neesiana	73	83
Sphaeropteris barbata	42	48
Sterculia populifolia	3	3
Sterculia versicolor	48	59
Tephrosia coccinea	49	60
Thomsonia napalensis	83	99
Trias oblonga	55	70
Uraria cordifolia	33	37
Urena speciosa	23	26
Viburnum foetidum	49	61
Wightia gigantea	71	81
Zingiber barbatum	46	55

---

* This name should be altered to *Apostasia Wallichii*: see page 76.

† This name should be altered to *Abelmoschus crinitus*: see note to page 39.

FIRST LIST OF SUBSCRIBERS.

THE KING'S MOST GRACIOUS MAJESTY.

	COPIES
The Honourable East India Company	40
His Royal Highness the Duke of Sussex	1
His Royal Highness Prince Leopold of Saxe Coburg	1
His Royal Highness the Duke of Orleans	1
His Royal Highness Prince Frederick Augustus, Duke of Saxony	1
The Prince of Essling	1
His Grace the Duke of Bedford	1
His Grace the Duke of Buccleugh	1
His Grace the Duke of Buckingham	1
His Grace the Duke of Northumberland	1
Her Grace the Duchess of Northumberland	1
His Grace the Duke of Somerset	1
The Most Noble the Marquess of Bute	1
The Most Noble the Marquess of Stafford	1
The Right Honourable Earl Amherst	1
The Right Honourable Countess Amherst	1
The Right Honourable Dowager Countess of Aylesford	1
The Right Honourable Earl of Carnarvon	1
The Right Honourable Earl of Dalhousie	1
The Right Honourable Earl of Darnley	1
The Right Honourable Earl of Dartmouth	1
The Right Honourable Earl Fitzwilliam	1
The Right Honourable Dowager Countess of Guildford	1
The Right Honourable Earl of Hardwicke	1
The Right Honourable Earl of Mountnorris	1
The Right Honourable Earl of Orford	1
The Right Honourable Earl of Plymouth	1
The Right Honourable Earl Powis	3
The Right Honourable Earl Spencer	1
His Excellency Lord W. Bentinck, Governor-General of India	1
The Right Honourable Lord Ducie	1
The Right Honourable Lord Colchester	1
The Right Honourable Lord Grenville	1
The Right Honourable Lord Viscount Milton, M. P.	2
The Right Honourable Lord Ashley, M.P.	1
Count Caspar von Sternberg, President of the National Museum Society of Bohemia, in Prague	1
The Honourable R. H. Clive, M.P.	1
The Honourable C. F. Stuart	1
Sir E. H. East, Bart., M.P.	1
Sir Robert Johnson Eden, Bart.	1
Sir Abraham Hume, Bart.	1
Sir Charles Metcalfe, Bart. Calcutta	1
Sir C. Gray, Chief Justice, Calcutta	1
Baron Benjamin De Lessert, Paris	1
Baboo Dwarkanauth Tagore, Calcutta	1
Baboo Ram Comul Sen, ditto	1
Baboo Sibchunder Doss, ditto	1
Baboo Radhacanta Deb, ditto	1

	COPIES
Baboo Prasanna Comar Tagore, Calcutta	1
Baboo Raj Suttee Kinker Ghosal, ditto	1
G. W. Arnott, Esq. Edinburgh	1
Messrs. Artaria and Fontaine, Booksellers, Mannheim	1
Robert Barclay, Esq.	1
Alexander Baring, Esq. M.P.	1
Mrs. Beaumont	1
G. Bentham, Esq.	1
Professor Bernhardi, Erfurth	1
W. Bethel, Esq. 43, Upper Grosvenor Street	1
Mrs. Bewicke, Close House, Northumberland	1
Dr. Blume, Brussels	1
J. Bonsor, Esq.	1
Mr. Hector Bossange, Bookseller, Paris	1
Mr. Borrowsch, Bookseller, Prag	1
Robert Brown, Esq.	1
Professor De Candolle, Geneva	1
Rev. Dr. Carey, Serampore	1
W. Catlett, Jun. Esq. Grantham	1
Mr. Clarke, Dorling Place, Vauxhall	1
H. T. Colebrooke, Esq.	1
Messrs. Coster and Co. Booksellers, Brussels	2
M. Cotta, Bookseller, Munich	1
Mr. Crochard, Bookseller, Paris	1
Mr. J. Cumming, Bookseller, Dublin	3
Miss Currer, Eshton Hall	1
Denne Denne, Esq. Elbridge	1
Messrs. Engelmann, Graf, Coindet and Co.	1
Mrs. Wm. Fairlie, Williamfield, Ayrshire	1
Dr. Fischer, Botanic Garden, St. Petersburgh	1
Dr. John Fleming	1
Mr. Frank, Bookseller, Brussels	2
P. G. Fuller, Esq. 28, St. James's Street	1
M. Garthe, Bookseller, Marburg	1
M. Gerold, Bookseller, Vienna	1
Dr. Robert Graham, Professor of Botany at the University of Edinburgh	1
Mr. George Graves, Peckham	5
Dr. R. Kaye Greville, Edinburgh	1
J. H., R. N.	1
Major-General Hardwicke	1
Richard Harrison, Esq. Liverpool	1
A. H. Haworth, Esq. F.H.S., Queen's Elms, Chelsea	1
G. Hibbert, Esq.	1
Dr. W. J. Hooker, Professor of Botany, at the University of Glasgow	1
Mr. Hunneman, London	1
Mr. Knight, King's Road, Chelsea	1
Dr. Kreysig, Councillor and Physician to H. M. the King of Saxony, Dresden	1
A. B. Lambert, Esq.	1
Haughton Langstone, Esq. 143, Piccadilly	1
Dr. Lehmann, Regius Professor of Botany, Hamburgh.	1
W. Leycester, Esq. Chief Judge of the Native Court, Calcutta	1
John Lindley, Esq. F.R.S. Professor of Botany, University of London	1
Messrs. Loddiges, Hackney	1
Messrs. Longman and Co., Booksellers	2
Messrs. Luchtmanns, Booksellers, Leyden	2
Messrs. Mackintosh and Co. Calcutta	2

	COPIES
Mr. Mahon, Bookseller, Dublin	1
Dr. Von Martius, Professor of Botany, Munich	1
Dr. Mertens, St. Petersburgh	1
Librairie Nicolai, Berlin	1
P. Godolphin Osborne, Esq. Widdial Hall, near Buntingford, Herts	1
Messrs. Parbury, Allen, and Co., Booksellers	3
Messrs. Perthés and Besser, Booksellers, Hamburgh	1
J. Pond, Esq. Greenwich	1
John Prescott, Esq., St. Petersburgh	1
Mr. Alexandre, Baron de Pronay, Pesth, Hungary	1
John Reeves, Esq. Canton	1
Messrs. Rey and Gravier, Booksellers, Paris	1
Mordaunt Ricketts, Esq. Bengal	1
Mr. Ridgway, Bookseller, Piccadilly	1
Mr. Rodwell, Bookseller, Bond Street	1
W. Roscoe, Esq. Liverpool,	1
Mr. Rusher, Bookseller, Reading	1
Wm. Salvin, Esq. Croxdale, near Durham	1
Mr. Schalbacher, Bookseller, Vienna	1
Messrs. Schaumburg and Co., Booksellers, Vienna	2
Professor Schwaegrichen, Leipzig	1
R. H. Solly, Esq. 48, Great Ormond Street	1
H. P. Standley, Esq.	1
Mrs. Eliz. Stott, Castle Dykes, Dumfries	1
D. Sykes, Esq. M.P.	1
Richard Taylor, Esq.	1
Charles Telfair, Esq. Mauritius	1
Dr. A. T. Thomson, Professor of Materia Medica, London University	1
Benjamin Torin, Esq. 35, Harley Street	1
W. C. Trevelyan, Esq.	1
Treuttel and Würtz, Strasburgh	10
R. Turner, Esq. Grantham	1
Mr. Van der Hoop, Amsterdam	1
L. Voss, Bookseller, Leipzig	1
Charles Baring Wall, Esq. M. P.	1
Mrs. Weddell, 6, Upper Brook Street	1
Robert Wight, Esq. Assistant Surgeon, Madras	1
John Willmore, Esq. Oldford, near Birmingham	1
H. H. Wilson, Esq. Calcutta.	1
The Calcutta Library	1
The Subscription Library, Hull	1
The Botanical Garden, Liverpool	1
The Horticultural Society, London	1
The Royal College of Surgeons, London	1
Rev. Peter Hordern, M.A. for the Cheetham Library, Manchester	1
The Radcliffe Library, Oxford	1
The Royal Library, Berlin	1
The Royal Library, Copenhagen	1
The Royal University Library, Copenhagen	1
The Moltkean Library, Copenhagen	1
The Classenian Library, Copenhagen	1
The Royal University Library, Göttingen	1
The Royal University Library, Halle	1
The University Library, Heidelberg	1
The Royal Library, Paris	1
The Library of the Jardin du Roi, Paris	1

PLANTÆ ASIATICÆ RARIORES.

AMHERSTIA.

SEPALA 4 basi connata in tubum persistentem, apice staminiferum, suffultum bracteis duabus oppositis, maximis, æstivatione valvatis. Petala 5 inæqualia: duo inferiora minuta, subulato-hamosa; lateralia cuneiformia, divaricata; supremum maximum, patens, obcordatum, unguiculatum. Stamina 10 diadelpha, filamentis 9 in tubum longum connatis, supernè liberis, alternis nanis; decimum liberum, basi pedicello ovarii accretum. Antheræ versatiles, omnes polliniferæ, alternæ breviores. Ovarium stipitatum, falcatum, 4—6-ovulatum, stipite tubo calycino adnato; stylus filiformis; stigma convexum, parvum. Legumen pedicellatum, planum, oblongum, oligospermum.

Systema Linnæanum, *Diadelphia Decandria.*

Ordo naturalis, *Leguminosarum* cohors *Cassieæ* Decand., *Heterostemoni* Desf. affinis.

Habitus: Arbor foliis amplis, pari-pinnatis, 6—8-jugis, floribus speciosis, digestis in racemos maximos, axillares, pedunculatos, flaccidè pendulos.

Genus dedicatum Nobili Comitissæ Amherst et filiæ ejus Dominæ Sarah Amherst, in tesseram summæ observantiæ, debitæ assiduitati indefessæ felicique successui quibus, dum in Hindustania moratæ sunt, botanicam scientiam coluerunt et promoverunt.

AMHERSTIA NOBILIS. Tab. 1. & 2.

Patria vix non Martaban, provincia regni Burmanici ad oram Tenasserim sita. Cultam tantùm observavi prope ripam dextram fluminis Saluen, ad urbem Martaban et ad Kogun, floribus onustam mense Martii.

Nomen Burmanicum *Thoca.*

Arbor 30—40-pedalis, trunco crasso, 12-pedali, cortice inæquali, ex cinereo fuscescente, comâ amplâ, ramosâ, frondosâ. Ramuli cylindracei, crassi, glabri, glauci; *tenelli* pubescentes, laxè penduli. Folia sparsa, patentia, approximata, pedalia ad sesquipedalia, abruptè pinnata, 6—8-juga. Petiolus *communis* teres, glaber, basi valdè tumidus, infra jugum primum bipollicaris, inde attenuatus, gracilis, rectus, æqualis, ad insertionem pinnarum vix dilatatus, terminatus cuspide subulatâ emarcescente; *partiales* breves, cylindrici, crassiusculi, transversim rugosi, quandoque ad medium dorsi bracteolâ muniti latiusculâ adpressâ; basi inconspicuè articulati. Pinnæ paribus 6, 7, vel 8, uncias duas ab invicem distantibus oppositæ, patenti-nutantes, oblongæ, basi rotundato-acutæ, vix inæquales, extrorsum attenuatæ in acumen gracile, lineare, cuspidatum, pollicare; planæ, membranaceæ, marginibus ferè parallelis integerrimæ; suprà saturatè virides, glaberrimæ, opacæ; subtùs adpressè puberulæ, valdè glaucæ, costâ gracili nervisque filiformibus elevatis, obliquis, aliquâ e peripheria distantiâ, mediante venâ arcuatâ usque ad imam cuspidem acuminis pinnæ excurrente, pulcherrimè anastomosantibus; subtilissimè reticulato-venosæ; interiores breviores, subovatæ, 6—7-pollicares, exteriores sensim longiores 10—12-pollicares, quin ultrà. Folia tenera unà cum ramulo novello pendula, flaccida, valdè glauca, pinnis purpurascentibus, adpressè sericeo-puberulis, conduplicatis, longè acuminatis. Stipulæ oppositæ, interdum alternæ, raròdeficientes, foliaceæ, lanceolatæ, attenuato-acutæ, integerrimæ, subunguiculatæ, puberulæ, erectæ, interdum subverticales, deciduæ, pollicares vel sesquipollicares. Racemi omnium maximi, ovati, acuti, solitarii, axillares, penduli, coccinei, cubitales ad tripedales, basi diametrum pedis et dimidii emetientes, floribus constantes 20 ad 26 speciosissimis, sparsis, approximatis, longè pedunculatis, adscendenti-patentibus, ruberrimis, flavo-ocellatis, inodoris. Pedunculus communis teres, carnosus, puberulus, rufescens, pennam anserinam crassus, 8—10-pollicaris, vestigiis bractearum delapsarum sparsis notatus; rhachis gracilis, subangulata, leviter undulata, saturatiùs colorata, ad insertionem pedicellorum parùm tuberculata, et cicatricibus bractearum notata. Pedicelli 1-flori, graciles, teretes, obsoletè spirales, puberuli, cum calyce bracteisque ruberrimi, 5-pollicares, infra apicem cylindricam, propter lineolas quatuor a commissuris et lateribus insertionis bractearum decurrentes, subrhomboidei, basi *bracteâ* caducissimâ, pallidè viridi, lanceolatâ, acuminatâ, pubescente, ad insertionem angustatâ, pollicari; præterea bracteæ aliquot vacuæ, per pedunculum communem sparsæ, citissimè evanidæ. Bracteæ *calycinæ* duæ maximæ, oppositæ, divaricato-patentissimæ, demùm reflexæ, lanceolatæ, acutæ, integerrimæ, parùm inæquilateræ, margine altero nempè rectiore, planæ, pollices duos et dimidium longæ, coriaceæ, pubescentes, obsoletè nervosæ, infra apicem pedicelli, linearum trium circiter a tubo calycis distantiâ, commissurâ utrinque porrectâ lateraliterque carinatâ insertæ, deciduæ, æstivatione valvatæ paginisque interioribus, salvis earum basi et medio alabastrum foventibus, sibi invicem applicitis et contiguis. Calyx tubulosus, limbo patente, quadrifido, corollaque æstivatione imbricatis; tubus cylindraceus, carnosus, crassus, obsoletè sulcatus, bracteis parùm brevior, 2-pollicaris, persistens, sursùm leviter ampliatus, ad faucem stamina et petala gerens; *laciniæ* integerrimæ, acutæ, membranaceo-marginatæ, longitudine tubum et se invicem æquantes, tenuiter nervosæ, deciduæ; superior (i. e. laciniæ 2 vexillo subjectæ in unum coalitæ) lanceolata, apice sæpiùs minutim bidenticulata, lateralibus oblongis duplò ferè latior; inferior oblongo-lanceolata. Corolla 5-petala, patentissima, propter duo petala inferiora nana et occulta quasi deorsum unilateralis, glabra. Petalum *superius*, seu Vexillum, maximum, coccineum, expansum, adscendens et parùm recurvatum, tripollicare, diametro bipollicari, obcordatum, sinu lato, mediò porrecto et crenulato, lobis rotundatis subrepandis; deorsum canaliculatum sensimque attenuatum in unguem semipollicarem, sulcatum, suprà puberulum; disco albo versus sinum maculâ flavâ, magnâ, orbiculato-reniformi, radiatim venulosâ, excepto margine superiore sinui contermino, cinctâ fasciâ atro-sanguineâ; lateribus conspersis lineolis brevibus, parallelis, subgeminatis, sanguineis. *Lateralia* cuneiformia, vexillum longitudine æquans, extrorsum lineas octo lata, divaricata, demùm reflexa, utrinque coccinea, disco obliquè venulosa, ad apicem obtusam suprà notata ocello flavo, reniformi, magno; deorsum sensim attenuata in unguem semicylindricum, brevem. *Inferiora* 2 cuneato-subulata, acuta, humulosa, erecta, albicantia, basi adelphiæ adpressa, lineas 2 longa, intra laciniam calycis inferiorem recondita. Stamina 10, diadelpha. Filamenta carnosa, lævia, pallida; 9 deorsum connata in tubum rectum, quadrisulcatum, sesquipollicarem, fauci calycis supernè insertum, posticè fissum; apice libera et longitudine valdè inæqualia: 5 nempè longissima, adscendentia, teretia, adelphiam æquantia; 4 hisce alterna brevissima, subulata, vix bilinearia, basi latiora; *decimum* liberum, pollicare, pedicello ovarii mox supra faucem calycis insertum. Antheræ oblongæ, versatiles, fusco-virides, filamentorum breviorum decimique liberi reliquis multò minores, subovatæ; omnes polliniferæ. Pistillum staminibus parùm brevius. Ovarium compressum, falcatum, villosum, canescens, uniloculare, ovulis 4 ad 6, margini loculi recto insertis; suffultum pedicello tereti, supernè libero, unguiculari, rufescente, infernè per tubum calycis decurrente parietique ejus postico connato. Stylus filiformis, adscendens, sanguineus. Stigma parvum, convexum. Legumen *immaturum* oblongum, complanatum, coriaceum, ruberrimum, glabrum, rugosulum, 7-pollicare, extrorsum pollices duos latum, acuminatum, deorsum attenuatum, basi acuta, margine altero recto, tumido, plano; 5-spermum, suffultum stipite bipollicari, ultra medium vaginato calycis tubo truncato, fere immutato. Maturum haud vidi.

The first notice I had of the existence of this magnificent tree was at Rangoon, in August 1826; when Mr. Crawfurd favoured me with some dried unopened flowers and a leaf of it, together with the following account, taken from a statement of his visit to Martaban, contained in the Calcutta Government Gazette, of the 29th May of that year.

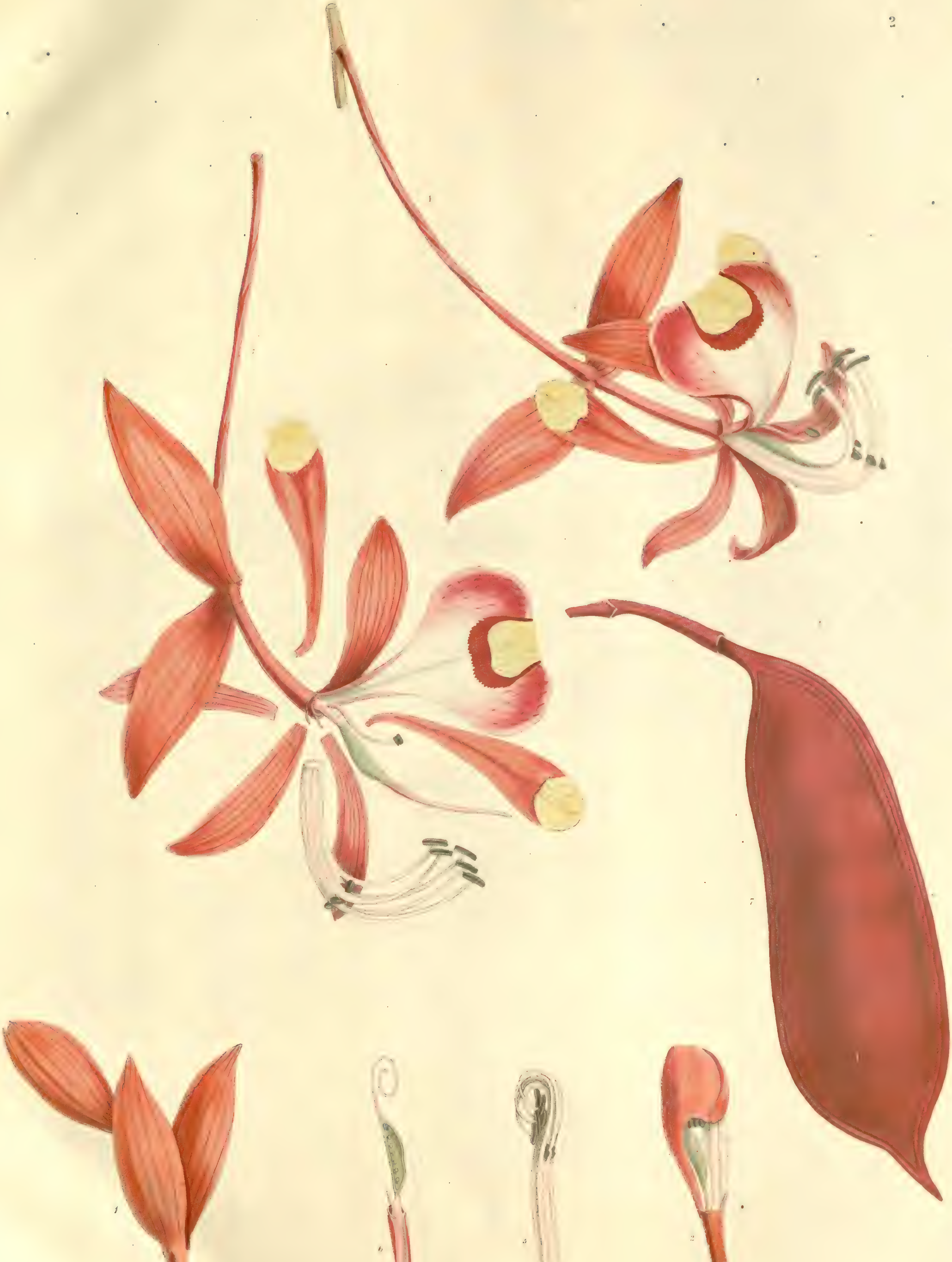
"Around the hill" at Kogun, on the Saluen river in the province of Martaban, "is a garden belonging to a neighbouring monastery, in no very good order. The only plant in it, which struck us as remarkable, was a tree about twenty feet high, abounding in long and pendulous panicles of rich geranium-coloured blossoms, and long and elegant, lance-shaped leaves. It is of the class and order of Diadelphia Decandria, and too beautiful an object to be passed unobserved even by the uninitiated in botany. Handfuls of the flowers were found as offerings in the cave before the images of Buddha."

Captain Hitchens of the Honourable Company's Madras military service, was good enough to give me a promise at the time, that he would if possible obtain for me, against my arrival on the Tenasserim coast, some more dried specimens; which he in part performed. In the mean time I accompanied the British Envoy to Ava; but neither while we stayed there, nor during our progress on the Irawaddi, could I procure the slightest additional information concerning the tree. It was not even known by name at the capital of the Burma empire. This I mention as a striking instance of the profound ignorance and indifference of that nation concerning all matters connected with the natural productions of their country, notwithstanding the unblushing pretensions of the higher classes, which were daily manifested in their intercourse with us.

The subject of these pages is so interesting that I venture to make one more extract respecting it, from my official report of a journey on the river Saluen, undertaken in March 1827, in order to examine the site and capabilities of the Teak-forests in that direction.

"In about an hour I came to a decayed Kioum (a sort of monastery), close to the large hill of Kogun, distant about two miles from the right bank of the river and twenty-seven from the town of Martaban. I had been prepared to find a tree growing here, an account of which had long ago been communicated to me by Mr. Crawfurd, and which I had been fortunate enough to meet with for the first time a week ago at Martaban; nor was I disappointed. There were two individuals of this tree here; the largest, about forty feet high, with a girth, at three feet above the base, of six feet, stood close to the cave; the other was smaller, and overhung an old square reservoir of water, lined with bricks and stones. They were profusely ornamented with pendulous racemes of large vermilion-coloured blossoms, forming superb objects, unequalled in the Flora of the East Indies and, I presume, not surpassed in magnificence and elegance in any part of the world. I call this tree *Amherstia nobilis.* The Burmese name is *Thoka.* Neither the people here nor at Martaban could give me any distinct account of its native place of growth; but there is little doubt that it belongs to the forests of this province. The ground was strewed, even at a distance, with its blossoms, which are carried daily as offerings to the images in the adjoining caves. Round the spot were numerous individuals of *Jonesia Asoca* in full blossom, inferior in beauty only to those trees; also several Nagesurs (*Mesua ferrea*). It is not a little remarkable, that the priests in these parts should have manifested so good a taste as to select two sorts of trees as ornaments to their objects of worship, belonging to a small but well-marked and extremely beautiful

Amherstia nobilis



[illegible] del.

[illegible]

[illegible] nobilis

group in the extensive family of Leguminous plants. At Martaban I found a third member of that same group, also of great beauty, *Bauhinia variegata*, planted close to the *Amherstia*. I had my draughtsman with me on purpose to compare and correct the figure he had already made from the Martaban specimens."

There can be no question that this tree, when in full foliage and blossom, is the most strikingly superb object which can possibly be imagined. I have very great satisfaction in naming it after the Right Honourable Countess Amherst and her daughter Lady Sarah Amherst, the zealous friends and constant promoters of all the branches of Natural History, especially Botany, who, after a residence of nearly five years in India, during which they performed an arduous and extensive journey to the lofty regions of western and northern Hindustan, spending many weeks among the mountains near the Himalaya, at an elevation of 10,000 to 12,000 feet, have returned to England with a large and very interesting collection of preserved specimens of plants, gathered and excellently preserved by their own skill and industry.

The leaves are ample, pinnate, and of a dark green colour; while young they are glaucous-purple and hang down loosely, together with the tender shoots to which they are attached. The leaflets are large, oblong, tapering into a most slender point, very glaucous underneath, and furnished with slender prominent rib and nerves, the latter uniting towards the margin in a most elegant manner. The flowers are numerous and very large, scentless, of a brilliant vermilion colour, diversified with three yellow spots; they are arranged in gigantic ovate bunches, pendulous on their long peduncle, and partially hidden beneath the profuse and elegant foliage. I have only seen one single pod, which was unripe; it was sword-shaped, flattened, with one of the margins thick and ribbed, seven inches long, pointed, dark red, containing five or six imperfect seeds.

By the assistance of my people I was able to procure some layers for the botanic garden at Calcutta; two of these, I attempted to bring with me to England, but although they produced fresh shoots soon after their embarkation, they perished early during the voyage.

The genus is nearly allied to *Heterostemon* of Desfontaine, but differs in the large valvate floral bracts, five-petalled irregular corolla, ten diadelphous stamens, and finally in having all the anthers polliniferous. Together with that genus, *Jonesia*, *Bauhinia*, and some others having a distinctly tubular calyx, it may perhaps be fitly separated into a distinct order, to which I would propose the designation of *Bauhinieæ*.

Plate I. A branch with a leaf and a raceme; much reduced. Fig. 1. A leaflet; natural size.

Plate II. Fig. 1. Flower-bud. 2. The same opened. 3. The same, the calyx and corolla being removed to show the stamens. 4. An expanded flower. 5. The same dissected. 6. Ovarium opened. 7. Unripe pod. *All the figures of the natural size.*

STERCULIA POPULIFOLIA. Tab. 3.

Foliis rotundato-cordatis, acuminatis, integris, membranaceis, glabris; racemis axillaribus, pedunculatis, ramosis, foliis brevioribus; perianthii laciniis linearibus, elongatis, revolutis, obtusis; folliculis ventricoso-ovatis, alâ obtusissimâ, cultriformi terminatis, longè stipitatis, glabris, intùs villosis.

Sterculia populifolia, *Roxb. Hort. Beng.* 50.

Sterculia populifolia, β acutiuscula, *Decand. Prodr.* 1. 483.

In Coromandelia detexit Benj. Heyne, misitque in hortum botanicum Calcuttæ, ubi primâ vice floruit Aprili 1823. Fructus maturi mense Junii.

Arbor 20-pedalis, trunco recto, valdè æquali, cortice lævigato, cinereo. Rami juniores valdè glauci, ferè pruinosi, cylindrici; novissimi unà cum foliis tenellis tomento copioso, stellato, ferrugineo obtecti. Folia ad apicem ramorum approximata, sparsa, patentia, subrotundo-cordata, integerrima, in acumen gracile attenuata, sinu baseos profundo, triangulari, lobisque divergentibus rotundatis; 4—6-pollicaria, membranacea, glaberrima; suprà nitida, punctis minutis, elevatis densè conspersa, subtus glauca, 7-nervia, nervis præterea duobus obsoletis, brevibus, marginalibus, axillis omnium cano-villosis; reticulato-venosa. Petiolus teres, gracilis, laminam folii longitudine æquans, glaber, utrinque parùm intumescens. Stipulæ longiusculæ, subulato-filiformes, subcarnosæ, villosæ, caducissimæ. Racemi axillares, solitarii, vel ex vestigiis foliorum delapsorum tuncque paniculati, ramulosi, pedunculati, erecto-patentes, petiolos subæquantes, rarò iisdem longiores, pauciflori, ramulis brevibus, alternis, remotis. Pedunculi teretes, graciles, carnosi, pube minutâ, stellatâ parcè conspersi, demùm glabri; *universalis* 2-pollicaris; *partialès* pollicares. Bractea parvula, linearis, emarcida, citò decidua infra divisuras pedunculorum. Flores duo tresve fasciculati, brevè pedicellati, coccinei, odorati. Perianthium profundè divisum in lobos 5 lineares, recurvatos, obtusos, ferè pollicares, integerrimos, suprà coccineos, cano-puberulos, subtùs flavicantes et tomentosos. Antheræ minutæ, oblongæ, sessiles, aurantiacæ, biloculares, duplici serie circum basin ovarii dispositæ: 5 inferiores angulis hujus oppositæ, 5 superiores iisdem alternantes. Ovarium ovatum, attenuatum, densè villosum, obtusè 5-angulare, nutans, suffultum pedicello ex fundo perianthii orto, 4-lineari, basi capillaceo, gracillimo, sursum ampliato et clavato, apice acuto; 5-loculare; locula polyspora, ovulis

axi adfixis. Stylus brevis, columnaris. Stigma parvum, planiusculum. Folliculi 4 vel 5, nunc pauciores, 2-pollicares, obliquè ovati, ventricosi, pedunculati, dorso convexi, apice terminati alâ latâ, planâ, cultriformi, sesquipollicari, obtusissimâ, ventre planiusculo dehiscentes, membranacei, reticulato-venosi, glabri; loculum magnum, tomento copioso, stellato, molli obsitum. Pedunculus *communis* sesquipollicaris; *partiales* paulò longiores, teretes, graciles. Semina subrotunda, grisea, lævia, nitida, basi latâ suturæ ventrali inserta.

This handsome and curious species of *Sterculia* differs from M. Decandolle's *S. populifolia*, in having acuminate leaves, and in the follicles being villous within. The claims of priority entitle it to the name given to it by Dr. Roxburgh; and I would therefore suggest for the other the specific name of *S. Candollii*. It is also allied to *S. macrophylla* of Ventenat.

Plate III. Fig. 1. 2. Flower. 3. The same opened. 4. Ovarium. 5. The same dissected. 6. Follicles. 7. A follicle burst open.

HIBISCUS Lindlei. Tab. 4.

Caule suffruticoso, petiolis pedunculisque scabris et aculeatis; foliis subrotundo-cordatis, palmatim 3—7-partitis, lobis lanceolatis, acuminatis, serratis; floribus axillaribus, solitariis; involucelli foliolis linearibus, hispidis, apice bilobis; corollâ patentissimâ; capsulâ adpressè pilosâ, sericeâ, demùm glabrâ.

Sectio generis *Furcària* Decand.

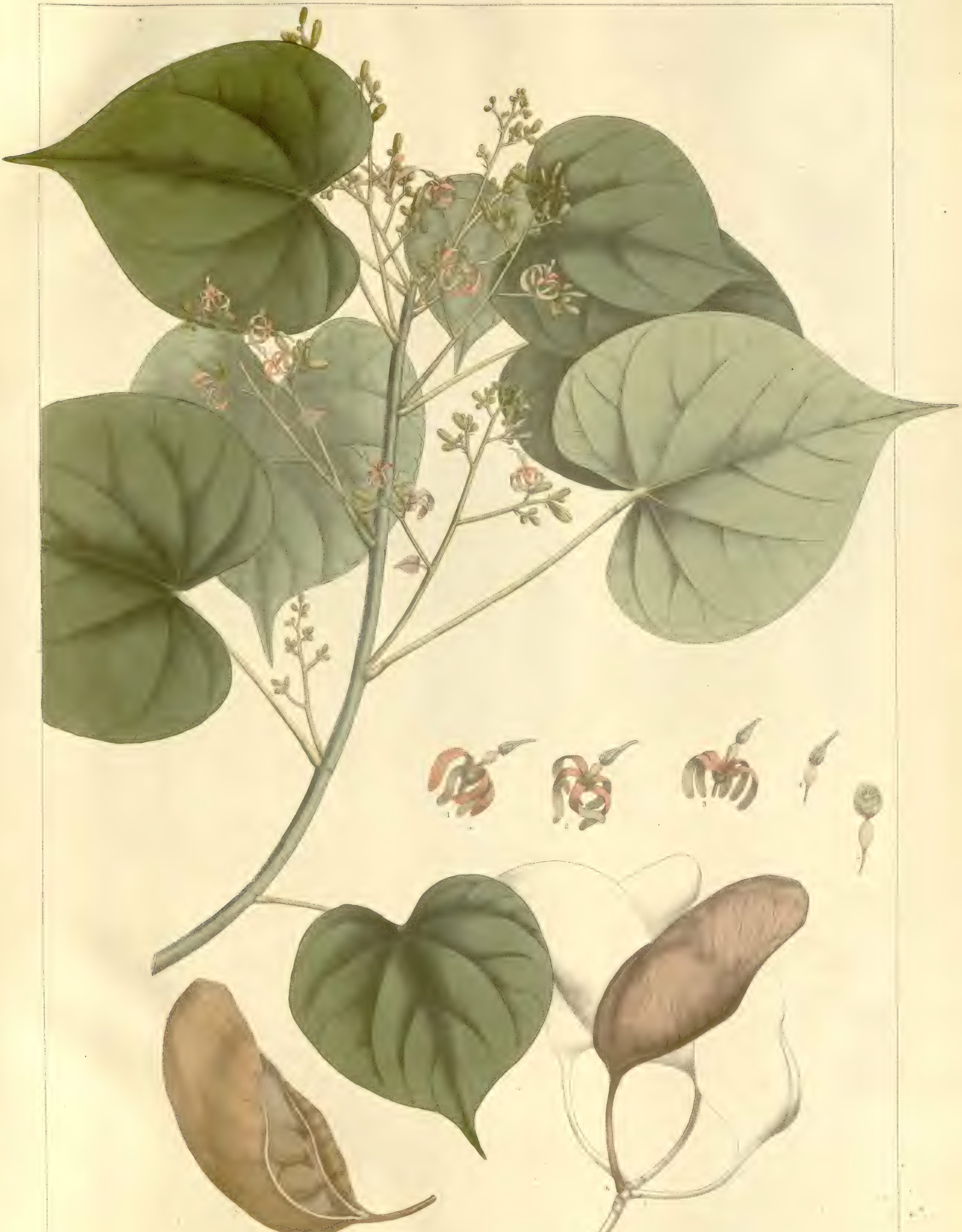
Habitat in regno Burmanico versus Segain, et in monte Avæ Taong Dong dicta, florens et fructiger Novembri. Ad Tavoy oræ Tenasserim legit plantarùm meus collector Gul. Gomez.

Suffrutex erecta, 3—4-pedalis, parcè ramosa. Rami cylindrici, supernè, uti petioli pedunculique asperi propter puncta minuta elevata et aculeos sparsos, breves, incurvos, conicos, subdiaphanos; ad apicem parùm pilosi. Folia alterna, patentia, rotundato-cordata, 4-pollicaria, plùs minusvè profundè 3—7-partita, lobis oblongo-lanceolatis, acuminatis, grossè et inæqualiter serratis, purpureo-marginulatis, inferiora aliquot nunc apice tantùm triloba; suprà glabra, nitida; subtus 5—7-nervia, venosa, nervis tactu scabris. Petioli teretes, parùm aculeati, pilosiusculi, longitudine foliorum. Stipulæ lineari-lanceolatæ, unguiculares, sericeo-pilosæ, deciduæ. Flores magni, speciosi, axillares, solitarii, brevissimè pedunculati. Pedunculus crassus, clavatus, aculeatus, semipollicaris, suffultus bracteâ lineari, recurvâ, hispidulâ, ipsum longitudine æquante, deciduâ. Involucellum 8—10-phyllum, patentissimum, ciliatum pilis longis, hyalinis, rigidis, copiosis, basi dilatatis: foliola linearia, acuta, unguicularia, dorso nudiuscula, apice intus aucta lobo conformi, vix breviore, parallelo, leviter divergente. Calyx ovatus, 5-fidus, involucello dimidiò longior, patens, fructus clausus, costis 10, prominentibus pilisque longis munitus, reticulato-venosus, intùs sericeo-villosus; laciniæ triangulares, valdè acuminatæ, ciliatæ. Corolla patentissima, diametro ferè 4-pollicari, violacea, fundo parùm concavo saturatiore, basi extus pilis adpressis, sericeis, solubilibus obsita; laciniæ obovatæ, obtusissimæ, parallelè venosæ, basi contractâ inappendiculatæ. Columna filamentorum purpurascens, gracilis, corollâ dimidiò ferè brevior, basi laxiusculè ampliatus, indeque gerens antheras luteo-aureas, fasciculatim filis brevissimis suffultas. Ovarium subrotundum, densè pilosum. Stigmata 5, cuneata, villosula, purpurea, vix exserta. Capsula ovata, magnitudine fructus grossulariæ minoris, calycis lobis conniventibus omninò inclusa, pilis sericeis densè vestita, matura glabrior. Semina 2 vel 3 in singulo loculo, triangularia, grisea, lineata, punctis elevatis, callosis, fuscis conspersa.

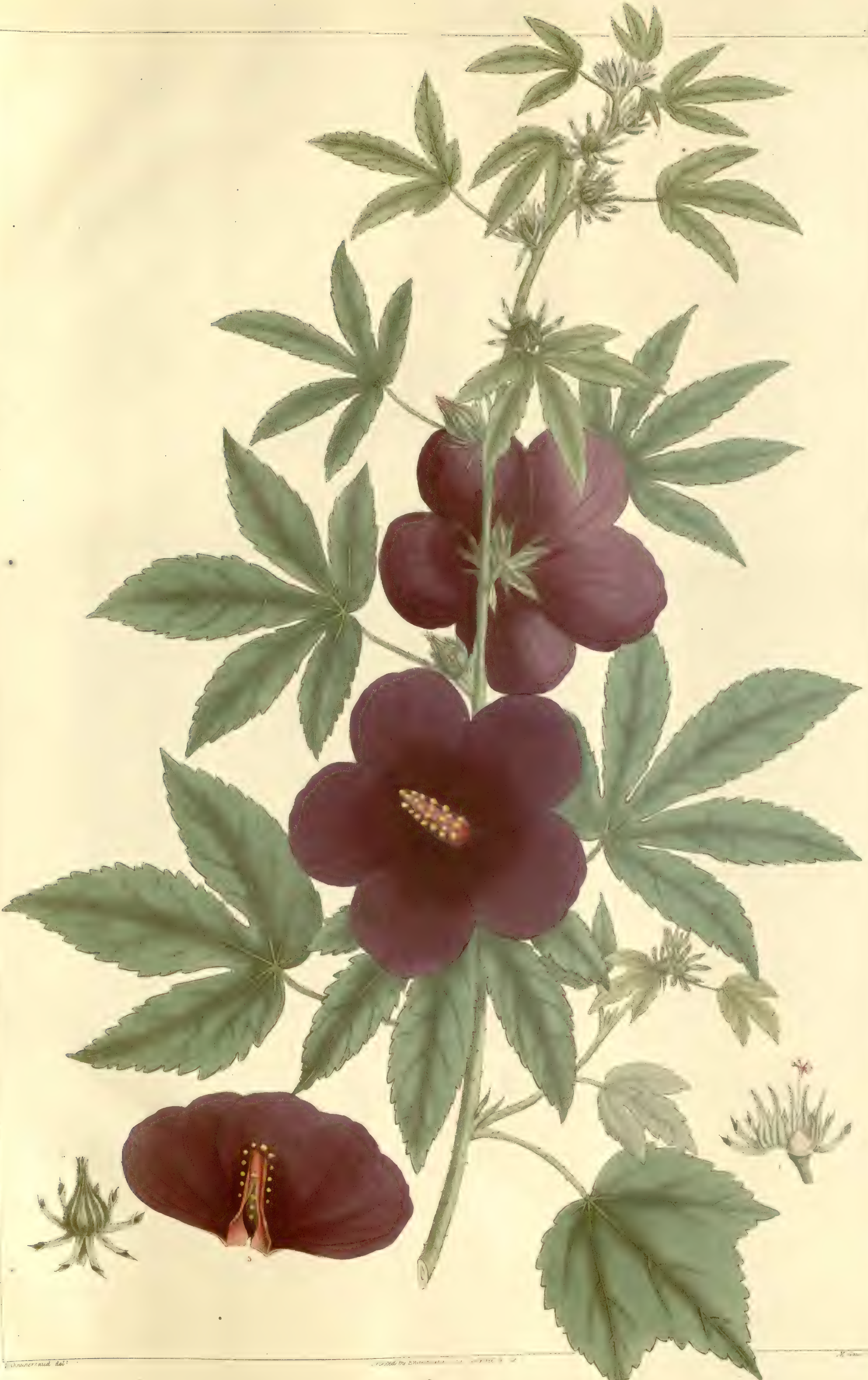
This very handsome species I took at first to be only a purple variety of Roxburgh's *H. furcatus*, which I have likewise found on the banks of the Irawaddi. But having had an opportunity, since my return from Ava, to compare both plants in their growing state in the Honourable Company's botanic garden at Calcutta, I am able to propose the following marks as sufficient to distinguish them specifically. The leaves in our plant are not hairy as in Roxburgh's, but nearly smooth; the involucres do not enlarge at the bifid apex, but are of a uniformly linear figure; and lastly the flowers, instead of being yellow, as in that species, are constantly of a deep purple colour. *H. bifurcatus* Cavan. differs, according to a note in Dr. Roxburgh's manuscript Flora Indica, made from the living plant introduced into the garden from Trinidad, in being smoother and void of the small tubercles, which render the other shrubs peculiarly rough to the touch; in having setaceous stipules and rose-coloured flowers.

Like most of the members of the extensive genus to which it belongs, it abounds in strong and woody fibres. All its green parts have an agreeably acid taste.

Plate III. Fig. 1. Calyx and involucre opened, showing the pistil. 2. Corolla opened, showing the stamens. 3. Calyx closed over the capsule.



Sterculia populifolia



Vishnupersaud del.

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lithog.

Hibiscus Lindlei

ANNESLEA.

Calyx basi bibracteatus, profundè partitus in lobos 5, subinæquales, persistentes, æstivatione imbricatos. Corolla monopetala, ovata, perigyna, fauce contractâ 5-fidâ, laciniis lobis calycinis oppositis. Stamina numerosa, erecta, inclusa, serie duplici disco perigyno inserta, distincta; antheris linearibus, adnatis, longè cuspidatis. Ovarium turbinatum, subinferum, 3-loculare, polysporum; ovulis ex apice placentæ centralis ope funiculorum brevium suspensis. Stylus 1, cylindricus, subpersistens. Stigmata 3, subulata. Bacca infera, sicca, globosa, bracteis binis persistentibus suffulta, lobis calycinis coronata, 3-locularis, loculis 1—3-spermis. Semina pendula, arillata, embryone replicato, cylindrico, inverso.

Classis Linnæana *Polyandria Monogynia.*

Ordo naturalis *Ternstroemiaceæ*, Mirb. *Cleyeræ* proxima.

Habitus: Arbor foliis exstipulatis, integerrimis, sparsis, floribus axillaribus, longè pedunculatis, fragrantibus.

Cum *Anneslea* Roxburghii et Salisburii revocata sit ad *Euryalen* et *Acaciam*, nomen de scientiis optimè meritum denuò restituo, in testimonium reverentiæ erga nobilem virum Georgium Annesley, Comitem Mountnorris, Societatis Regiæ et Linneanæ socium, peregrinatorem præclarum cujus, tunc Vicecomitis Valentiæ, exstant itinerum volumina tria, Botanices cultorem et fautorem indefessum.

ANNESLEA FRAGRANS. Tab. 5.

Reperi in sylva prope Moalmeyn, in Martabania, florentem Januario, fructigeram Aprili.

Arbor 30-pedalis. Ramuli grisei, teretes, uti omnes partes læves. Folia versus apices ramorum approximata, sparsa, patentia, lanceolata, vel oblongo-lanceolata, obtusa, integerrima, basi acuta, coriacea, lucida, atroviridia, siccitate subflavicantia, 2—4-pollicaria, subtùs pallida, costâ gracili elevatâ, nervis distantibus, capillaceis, vix prominulis, versus marginem reticulatis. Petiolus brevis, suprà planus. Stipulæ nullæ. Flores axillares, vel e vestigiis foliorum summorum delapsorum, erecto-nutantes, ex albo flavicantes, majusculi, longè pedunculati, fragrantes, æstivatione imbricati. Pedunculi teretes, graciles, subclavati, 3-pollicares, foliis parùm breviores, basi nudi, supernè leviter angulati, apice infra calycem bracteis 2 ovatis, obtusis, concaviusculis, subcarinatis, oppositis, raro alternantibus, persistentibus. Calyx profundè divisus in lobos 5 crassos, coriaceos, ovatos, acutos, membranaceo-marginatos, subinæquales, basi latâ nunc subcordatos, patentes, persistentes, unguiculares, intùs flavicantes. Corolla monopetala, flavescens, calyce parùm brevior, ventricoso-ovata, acuta, 5-fida: laciniæ ovato-cordatæ, acutæ, conniventes et imbricantes, lobis calycinis oppositæ; faux contracta. Stamina circiter 30, erecta, glabra, æqualia, corollâ parùm breviora, intra basin hujus, circum verticem ovarii conicam duplici serie inserta, omninò distincta. Filamenta filiformia, brevia. Antheræ lineares, longæ, utrinque longitudinaliter dehiscentes, connectivo ulterius in cuspidem longam, filiformem producto. Ovarium parvum, adnatum, vertice tantùm intra corollæ fundum, liberum, turbinatum, carnosum, 3-loculare: ovula plura ad fornicem loculi coacervata, obtusa, basi latâ ope funiculorum brevium carnosorum ex apice dissepimenti suspensa. Stylus teres, glaber, corollâ parùm longior, basi persistens. Stigmata 3 brevia, subulata, recurvato-subpatentia. Bacca infera, globosa, nutans, magnitudine cerasi, tuberculis minutis, sublepidotis obtecta, basi munita bracteis calycinis duabus adpressis, ferè immutatis; coronata lobis calycis tardè dilabescentibus, intra quos convexa centroque stylifera; 3-locularis, demùm fissurâ unâ alterâve valdè irregulariter disrumpens. Caro crassa, suberosa. Semina 2 vel 3 in singulo loculo farcto, nunc solitaria, unguicularia, oblonga, parùm complanata, obtusa, arillo carnoso, tenui, coccineo obtecta, ex apice dilatata placentæ centralis triquetræ unà cum pluribus ovulis abortivis et immutatis pendula. Funiculi breves, carnosi, inæquales. Testa chartacea, nitida, flava. Membrana *interna* crassiuscula, diaphana. Embryo cylindricus, albus, pollicem ferè longus, medio replicatus in crura duo parallela, subæqualia, approximata, mediante processu angusto testæ, e basi ejusdem orto sejuncta. Cotyledones semicylindricæ, intùs planæ, radiculam cylindricam, superam longitudine vix excedentes.

This very elegant tree comes near to *Cleyera* and *Freziera*, but differs in having a monopetalous, ventricose corolla, with a contracted mouth, and smooth, linear anthers, which in the former genus are hispid, and in the latter subcordate at their base. It seems to unite the first two divisions of the family to which it belongs, as established by Professor Decandolle, by having the monopetalous corolla of the one, and the divided stigma of the other. Its ovarium is semiadherent; but the berry is absolutely inferior. In habit it much resembles *Cleyera ochnacea.* The flowers are delightfully fragrant.

Plate V. Fig. 1. Flower opened, the lobes and bracts of the calyx being detached, showing the stamens and style. 2. Corolla, detached. 3. The same opened. 4. Flower divided longitudinally, exhibiting the structure of the ovarium and the insertion of the stamens and style. 5. Stamen. 6. Berries, natural size. 7. The same cut across in the middle. 8. Seeds in their natural position. 9. Placenta, showing the abortive ovula and one ripe seed, the others being removed. 10. Detached seed. 11. The same divided in the middle. 12. The same having the arillus partly removed, exhibiting the testa. 13. The same, the testa being partly removed to show the posture of the embryo. 14. Embryo.

PHASEOLUS FUSCUS. Tab. 6.

Annuus, cano-pubescens, pilosulus, volubilis, ramosissimus; radice fibrosâ; ramis filiformibus sulcatis; foliolis ovatis, acutis, integris; racemis pedunculatis, foliis brevioribus; floribus extùs lucidis; calyce resinoso-punctato, 4-dentato, dente inferiore elongato; carinâ subrostratâ, incurvâ; legumine hirsuto, plano, lineari.

Habitat ad Prome, in regno Burmanico, florens leguminibusque immaturis onustus initio anni. In horto botanico Calcuttensi floruit primâ vice mense Martii 1827.

Herba annua, gracilis, ramosissima, pubescentiâ mollissimâ, copiosâ, canâ obsita, pilisque brevibus conspersa, satis altè volubilis. Radix constans fibris ramosis, gracilibus. Caulis brevis, mox divisus in ramos graciles, sulcis 5 exaratos. Folia 3-foliata, subapproximata, patentia. Petioli 2—3-pollicares, pilosuli, suprà sulcati; *partiales* brevissimi, cylindrici. Foliola ovata, integra, attenuato-acuta, basi rotundata, ferè æqualia, membranacea, 3-pollicaria, subtùs molliora, villosa, incana, minutim resinoso-punctulata, reticulata, 3-nervia. Stipulæ valdè deciduæ, lanceolatæ, adpressæ, brevissimæ. Racemi ex omnibus ferè axillis superioribus solitarii, erecti, oblongi, pedunculo suffulti tereti, villoso, pollicari. Flores numerosi, approximati, sparsi, nunc geminati, mediocris magnitudinis, inodori, extùs fusci, lucidi, intùs flavi. Pedicelli breves, cylindrici, pilosuli, punctati, basi bracteolâ lineari, caducâ. Calyx fuscescens, ovatus, pilis copiosis capitato-glandulosis, punctisque ferrugineis, resinosis, elevatis, subconfluentibus obsitus, intùs lævis; 4-dentatus, dentibus acutiusculis: inferiore lineari, parùm elongato, superiore latiore, ovato, lateralibus brevissimis. Vexillum orbiculato-reniforme, expansum, parùm depressum, medio canaliculatum, lineas 8 transversas emetiens, subtus saturatè fuscum, admodum lucidum, suprà opacum, flavescens, venis parallelis, fuscis, ad marginem reticulatis, *ungue* brevi incurvo. Carina subovata, compressa, flava, in rostrum attenuata breve, super vexillum arcuato-decurvum, apice vix spirali subtruncatum. Alæ cuneato-oblongæ, erectæ, obtusæ, basi semisagittatæ, carina dimidio breviores. Ovarium pilosum, brevissimè stipitatum, basi circumdatum annulo crenulato, brevissimo. Stylus gracillimus. Stigma clavatum. Legumen planum, lineare, acuminatum, deorsum parùm attenuatum, sessile, pilis valdè copiosis, patentibus, ferrugineis obtectum, polyspermum. Semina lævia, reniformia, isthmis haud interstincta; matura haud visa.

This is a very elegant climber, remarkable chiefly on account of its very glandular calyces, and the dark brown, glossy colour of the back of the vexillum, while its inner surface is opaque and of a yellow colour, slightly tinged with brown, and elegantly veined and reticulated. The plant is annual and much branched; all its green parts are densely covered with soft pubescence, interspersed with short hairs.

Plate VI. Fig. 1. 2. Flower viewed in two directions. 3. The same dissected. 4. Alæ and Carina detached. 5. Legume.

CARALLUMA CRENULATA. Tab. 7.

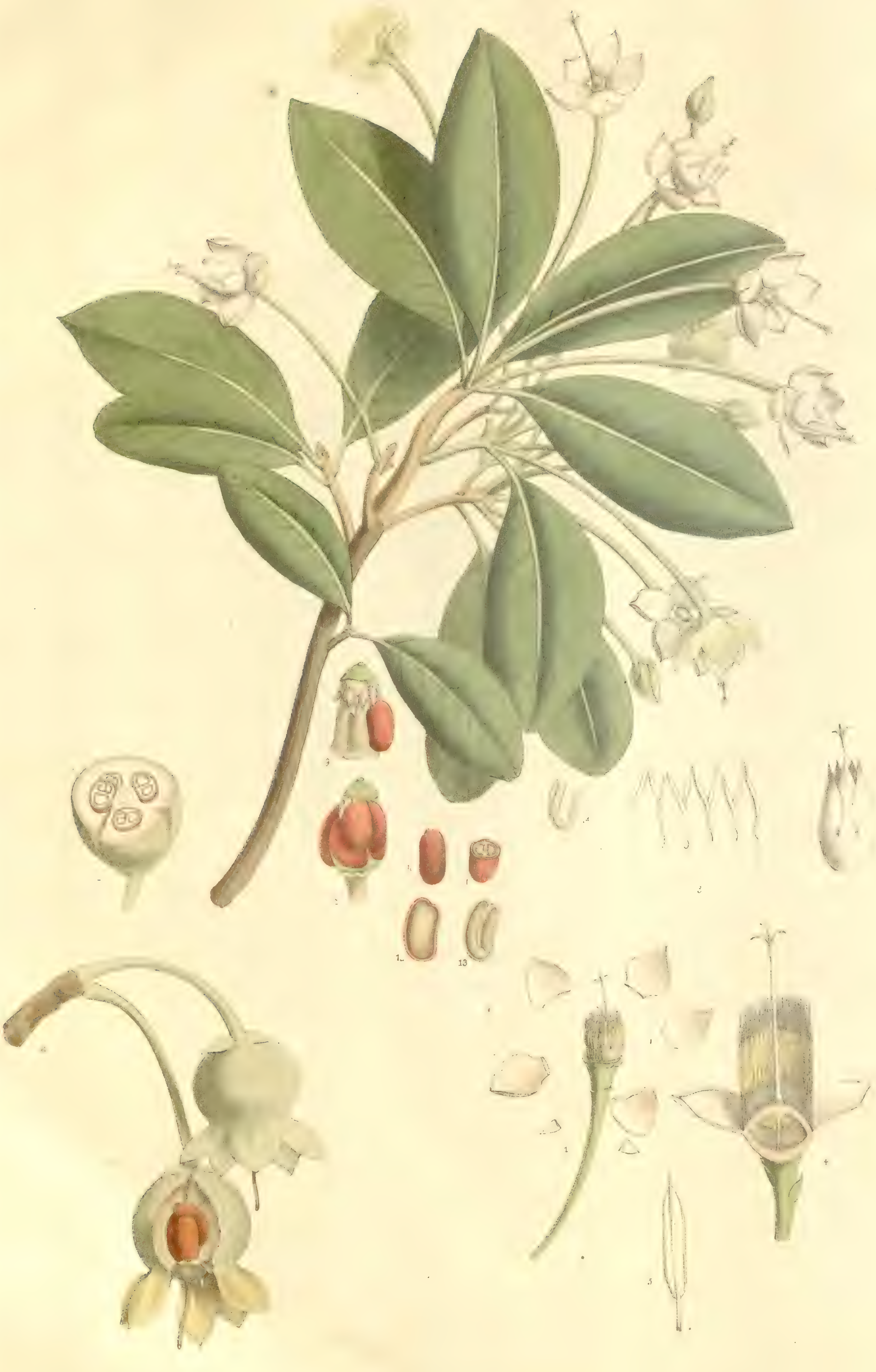
Ramis erectiusculis, rigidulis, tetragonis, lucidis, lævibus, sinuatis, multidentatis, dentibus porrectis; foliis subcordatis, plicatis, recurvis; floribus terminalibus, umbellatis, planis; laciniis corollæ triangulari-ovatis, acutis, fimbriatis; coronâ stamineâ 5-fidâ, lobis apice truncatis, crenatis.

Habitat in arenosis montium prope urbem Segain, ad ripam dextram fluminis Irawaddi, contra Avam sitam, florens Novembre. In horto botanico Calcuttæ floruit mense Augusti 1826.

Caulis basi cylindricus, subrepens, adscendens, radices emittens filiformes; sursùm ramosa, paniculata. Rami tetragoni, erecto-adscendentes, rigidiusculi, læves, lucidi, digitum minimum crassi, 1—4-pollicares, vix attenuati; anguli prominentes, profundè sinuati et dentati: dentes porrecti et acuti, alternantes, apice adfigentes folium patenti-recurvum, subcordato-ovatum, plicatum, acutum, vix ultra lineam longum. Flores pedunculati, inodori, 20 circiter collecti in umbellam globosam, terminalem, diametrum sesquipollicarem emetientem. Pedunculus teres, carnosus, subclavatus, unguicularis. Laciniæ calycis lanceolatæ, patentes, acutæ, læves. Corolla omninò plana, patentissima, pollicaris, subtus pallidè viridis, albicans; suprà flava, fasciis latiusculis, flexuosis, parallelis, versusque medium annulis concentricis, angustis, fuscis ornata; laciniæ lato-ovatæ, ferè triangulares, acutæ, dimidiâ inferiore parte ciliatæ pilis longis, patentibus, violaceis, clavatis. Columna minima, exserta, subglobosa. Corona staminea simplici serie 5-fida; lobi violacei, antheris incumbentes, lineares, apice subtruncatâ 2—3-crenati, basi utrinque in denticulum acutum, arcuatum producti. Antheræ brevissimæ, membranaceæ. Massæ pollinis cuneatæ, subtriangulares, opacæ, fuscæ, utrinque convexæ, brevissimè pedicellatæ, ope *corpusculi* ovati profundè sulcati, fusci, nitidi angulis stigmatis adfixæ. Ovaria subcylindrica, lævia. Stigma pyramidatum, 5-angulare, truncatum.

This species comes near to *Stapelia* (*Caralluma*) *umbellata* Roxb., but differs in its short, compact habit, straight, glossy, sharply four-cornered branches, smaller flowers, perfectly flat corolla with ciliated lobes, and finally in the five-parted corona staminea. It is altogether smaller than that species.

Tab. VII. Fig. 1. 2. Flower viewed from both sides. 3. Calyx and columna. 4. Pistillum. 5. Two masses of pollen attached to their corpusculum. *All more or less magnified.*



Vishnupersaud del:

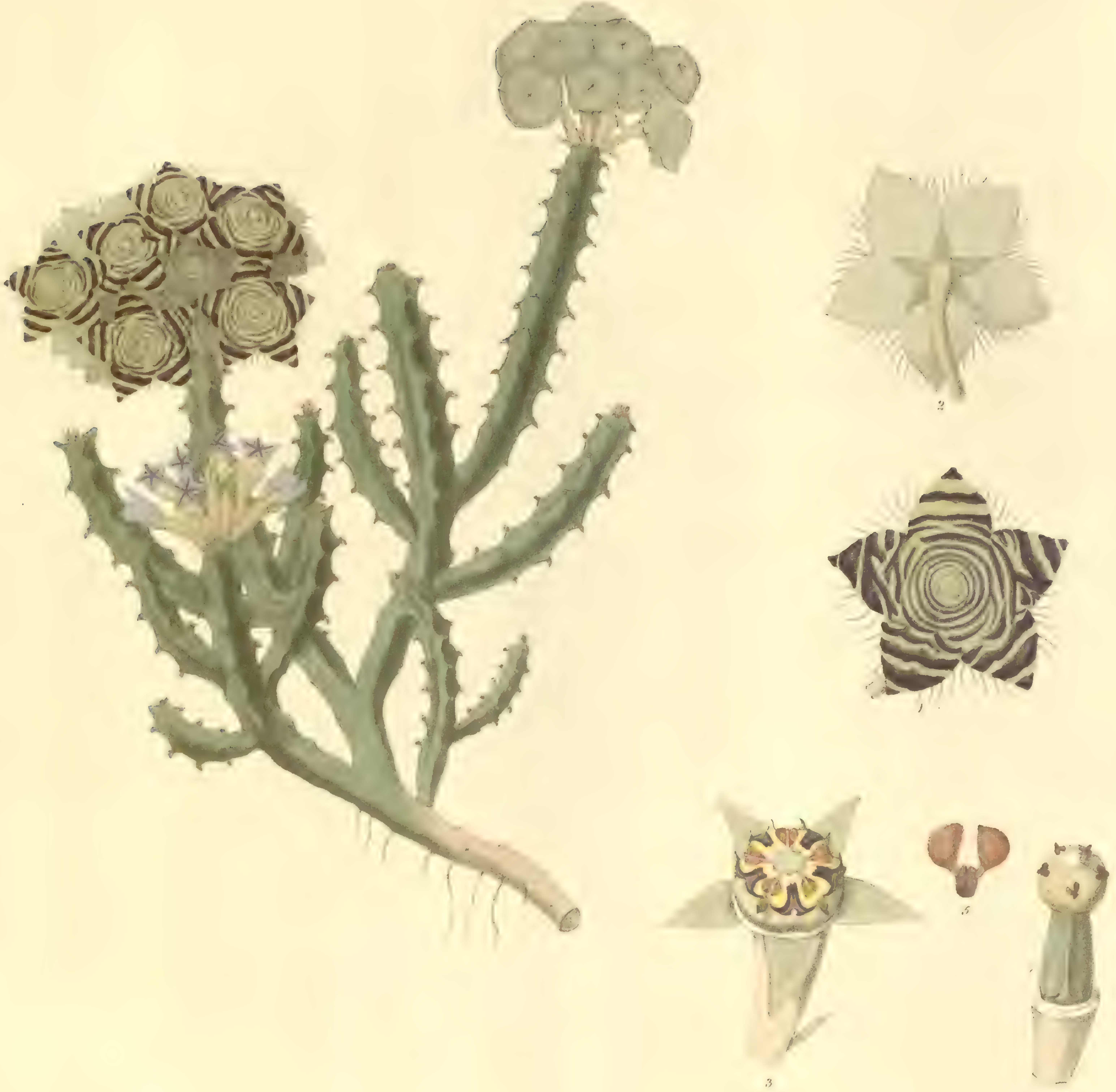
Printed by Engelmann Graf Coindet & Co

M Gauci lith:

Anneslea fragrans

Phaseolus fuscus

Vishnupersaud del.



Printed by Engelmann, Graf Coindet & Co

M. Gauci lithog

Caralluma crenulata.

CARALLUMA FIMBRIATA. Tab. 8.

RAMIS elongatis, attenuatis, apice nutantibus, obsoletè sinuato-denticulatis; foliis lineari-lanceolatis, acutis, planis; floribus axillaribus, solitariis, subcampanulatis, nutantibus; laciniis corollæ apice falcatis, marginibus replicatis fimbriatis; foliolis coronæ antheris alternantibus 2-cornutis.

Habitat in collibus sterilibus arenosis ad Yenangeun fluminis Irawaddi, petroleo et fossilibus tantùm uberibus, et inter ruinas urbis Pagamew, florens (ut etiam in horto Calcuttensi) et fructifera mense Septembris.

PLANTA 8—12-pollicaris, pallida, subglaucescens, debilis, glaberrima. RADIX constans fibris longis, pallidis. CAULIS digitum crassus, infernè subcylindricus, sursùm angulatus. RAMI elongati, 4—7-pollicares, quadrangulares, apicem versus attenuati, subcylindrici, et parùm nutantes; anguli obsoletè sinuosi et remotè denticulati. FOLIA lineari-lanceolata, acuta, erectiuscula, plana, lineas duas longa. FLORES axillares, solitarii, parvi, nutantes, rarissimè 2 vel 3 terminales, violacei, inodori, campanulati. PEDUNCULUS cylindricus, unguicularis. CALYX profundè divisus in *lacinias* 5 lanceolatas, acutas. COROLLA campanulato-patens, profundè 5-fida; LACINIÆ ferè pollicares, *dimidiâ inferiore parte* lanceolatæ, nudæ, suprà flavæ, lineis pluribus transversis purpureis striatæ, subtus pallidè flavæ; *exteriore parte* purpureæ, explicatione ovatæ, sed propter latera replicata verticales et falcatæ, cuspidatæ, margine superiore recto puberulo, posticis convexis fimbriatis filis longis, tenuissimis, concoloribus, basi articulatis, vacillantibus. COLUMNA parvula, globosa. CORONA atropurpurea, 10-fida: LACINIÆ 5 antheris incumbentes lineares, apice subemarginatæ; 5 hisce alternantes ad basin usque divisæ in dentes duos arcuatos, divaricatos, cum proximis decussantes, apice terminatos glandulâ minutissimâ flavicante. MASSÆ POLLINIS planiusculæ, cuneatæ, opacæ, pedicellatæ; CORPUSCULA linearia, fusca, nitida. FOLLICULUS abortu solitarius, cylindricus, gracilis, lævis, 5-pollicaris.

Roxburgh's *Stapelia adscendens* (*Caralluma*, Br.) is very like our plant, but differs in the absence of the long articulated flaccid ciliæ of the corolla. *Stapelia subulata*, Forsk. Cat. Arab. p. cviii. n. 193. t. 7, approaches also very closely to it; but I conjecture they are different.

This curious species delights in arid exposed situations. I found it among the ruins at Pagamew, and on the hills at Yenangeun, among stones and fossils, not far from the celebrated petroleum wells*.

Tab. VIII. Fig. 1. Calyx after the corolla has fallen off. 2. Flower. 3. A detached lacinia of the corolla. 4. Columna. 5. Two masses of pollen inserted in their corpusculum. *The last three figures much magnified.*

---

* I avail myself of this opportunity for correcting a slight mistake in the notes, which it appears the late envoy to the Court of Ava communicated to Professor Buckland, and on which this eminent geologist founded a memoir entitled, *Geological Account of a series of Animal and Vegetable Remains and of Rocks, collected by J. Crawfurd, Esq., on a Voyage up the Irawaddi in* 1826 *and* 1827; which was read before the Geological Society on the 18th of April 1828, and has since been inserted in the 2nd volume of their Transactions, 2nd series, page 377. I was in hopes that Mr. Crawfurd, in recently publishing his *Journal of an Embassy to the Court of Ava*, would himself have rectified the mistake, especially as he has incorporated the whole of the said memoir, in which it occurs, with his book, in the shape of an Appendix; but since he has omitted this, I now proceed to do it for him, in as few words as I can.

Professor Buckland begins his memoir in these words: "For the specimens and notes which form the subject of the present communication, the Society is indebted to the zeal and activity of J. Crawfurd, Esq. one of its Fellows, who having occasion to traverse the Burmese country on an Embassy to Ava in the years 1826 and 1827, discovered an extensive deposit of organic remains in that unknown and distant region." Again, a little further on, "It is on an examination of these specimens, and of the notes contained in Mr. Crawfurd's daily journal, that the observations and descriptions that make up the present memoir are founded." Memoir, page 377; Appendix to Mr. Crawfurd's work, page 78.—In the next page and at the conclusion the following encomium is bestowed upon the late envoy. "It could scarcely have been anticipated that, within so short a period as has elapsed since the date of this publication" (Professor Buckland's *Reliquiæ Diluvianæ*), "the zealous investigations of a single individual should have gone so far as those of Mr. Crawfurd have done, to supply an answer to the question then proposed." "It must be confessed, in concluding, that the result of these discoveries, though intensely interesting, and a splendid example of what may be done by the skill and activity of one zealous gentleman," &c. Memoir, pages 378 and 389; Appendix, pages 78 and 88.

The reader is now requested to turn to Mr. Crawfurd's book. "The most curious petrifaction, however, which we met with, was obtained by Dr. Wallich,—a fossil bone, which from its appearance we judged at the time to be the lower part of the femur or thigh-bone of an elephant." Journal, 23rd September, p. 53. On this passage I have to remark, that I did not *obtain* this fossil, but walking along the banks of the Irawaddi a little below Yenangeun, in company with Dr. Stuart and Lieut. Montmorency, *the envoy being on board the Diana steamer at the time*, I—or according to Professor Buckland's memoir, Mr. Crawfurd—discovered this large relic. The whole party landed in the afternoon, but we could find no more specimens of the kind; nor did we meet with a single one for upwards of three months, until on our return from Ava we came again to the *identical spot* where the discovery had originally been made; and here we now collected an amazing quantity of similar animal petrifactions. This last event, which has nothing whatever to do with the discovery, our author describes in chap. 12, p. 336; and he pointedly refers to it in the list of contents which heads the chapter, in these words: "Remarkable discovery of fossil bones;" while the list of the contents at the beginning of chap. 2, which contains the real discovery, is perfectly silent on the subject of it.

Great praise is no doubt due to the geological labours and discoveries of Mr. Crawfurd. Some little credit should, I think, be given also to the sources from whence were derived the splendid and altogether matchless opportunities, which the Mission enjoyed for prosecuting researches into natural history, and which rendered success absolutely inevitable. My own share in the harvest has been but trifling, but so much the less can I afford to part with it; and I leave it with confidence to the decision of the Geological Society, to whom I have had the honour of belonging these many years, whether Mr. Crawfurd's pretensions, as held forth in their Transactions, are founded on facts or otherwise.

CURCUMA Roscoeana. Tab. 9.

Spicâ centrali oblongâ, tetragonâ, coccineâ, nudâ, bracteis ligulato-porrectis, quadrifariis ; antherâ cristatâ, loculis discretis, ecalcaratis ; foliis oblongis, subcordatis.

Habitat in Pegu et ad oram Tenasserim : floret tempore anni pluvioso.

Planta 1—3-pedalis surgens e radice parva, oblonga, tuberculosa, plurima demittens tubera ovata vel rotunda, parva, filo gracili suspensa, fuscescentia, intùs lacteo-alba, apice sæpè terminata radiculâ fibrillosâ, vix semipollicaria. Caulis crassus, compressus, 6—8-pollicaris, quin pedalis, compositus e vaginis foliorum bifariè imbricantibus, alternis, marginatis, fuscescentibus, striatis, laxè villosis, scapum omninò involventibus, ore utrinque productis in ligulam brevem, obtusam. Folia patula, oblonga, subrepanda, basi inæqualiter subcordata, glabra, pedalia ad sesquipedalia, suprà nitida, uniformiter viridia, obliquè undulata, subtùs glauca, costâ elevatâ crassâ. Petioli graciles, profundè sulcati, purpurascentes, folia longitudine subæquantes. Spica erecta, centralis foliorum, hisce tertio brevior, 6—8-pollicaris, diametro tripollicari, ad apicem haud comosam paulò contracta, basi attenuata in scapum cylindricum, e viridi lutescentem, crassiusculum, omninò a vaginis foliorum involutum et occultum ; fulgido-coccinea, valdè regulariter tetragona vel pentagona, totidemque exarata sulcis latis, totam longitudinem excurrentibus. Bracteæ sesquipollicares, glaberrimæ, coccineæ, 2—3-floræ, basi latâ adnatæ et leviter decurrentes, sursùm liberæ, infundibuliformes, fauce amplâ, in limbum productæ ligulato-ovatum, obtusum, recurvato-patentem, plicatum, dorso convexum, in series 4 vel 5 porrectas, regulares, longitudinales dispositæ, summæ paulò decrescentes, concolores, terminales vacuæ. Spica junior inaperta, oblongo-ovata, attenuata, acuta, strobiliformis, intensè coccinea, bracteis lato-ovatis, adpressis, apice parùm recurvatis, imbricantibus. Flores flavi, infundibuliformi-clavati, majusculi, faucem bractearum totam successivè occupantes supraque eam parùm elevati. Tubus cylindricus, dimidiâ inferiore parte obtectus calyce tenuissimo, cylindrico, tridentato, sursùm leviter ampliatus. Corolla duplici serie alternatim sexfida, bilabiata. Laciniæ exteriores ovatæ, subacutæ ; dorsalis paulò latior, concava, cum interioribus lateralibus, subconformibus, ovatis, basi latis in labium superius limbi fornicatum connivens ; *labellum* sive lacinia antica seriei interioris subrotundum, obtusum, levissimè retusum, patens, supra bracteam spicæ parùm decurvatum, disco lineis duabus elevatis sulcoque intermedio notatum. Filamentum latiusculum, breve, inter bases subdistantes laciniarum lateralium interiorum insertum. Anthera oblongo-conica, carnosa, infra labium corollæ superius nutanti-adscendens, longiuscula, attenuata, cristâ membranaceâ, ciliatâ, ovatâ, recurvatâ terminata, basi latâ cum filamento articulata ; *locula* 2, antica, omninò discreta sulcoque profundo separata, basi obtusa et nuda, supernè evanescentia. Ovarium parvulum, ovatum, puberulum. Stylus filiformis, basi corpusculis luteis brevissimis auctus. Stigma infundibuliforme, pubescens, vix ultra cristam antheræ elevatum. Capsula *immatura* oblongo-clavata, lævis, 3-locularis, seminibus farcta numerosis, arillo magno, candido, profundè fimbriato involutis, ferè inodoris et insipidis.

This is an extremely beautiful and splendid plant, and certainly one of the most ornamental of the whole genus. It may at once be distinguished from all the other species by its uniformly scarlet, straight, tetragonal or pentagonal, deeply furrowed, oblong, subacute spike, which is destitute of any coma, and consists of very numerous tongue-shaped spreading bracts disposed in four or five longitudinal, protruding series, each forming a large pouch occupied by one flower at a time. The structure of the anther differs from any observed in the other species, and in some degree invalidates the character of the genus as it now stands ; for it is terminated, as is the case in *Kæmpferia*, by a large oval crest, and its base is perfectly naked ; its cells resemble those of a *Habenaria*, being completely separated from each other by a deep and broad furrow, and vanishing upwards. The size of the plant varies considerably. In the wild state I have rarely found it beyond one or two feet in height ; but in the botanic garden of Calcutta it even exceeded three feet, with a spike full twelve inches long. The principal root is very small, the tubers very numerous, small, milk-white within, possessing a very faintly aromatic taste.

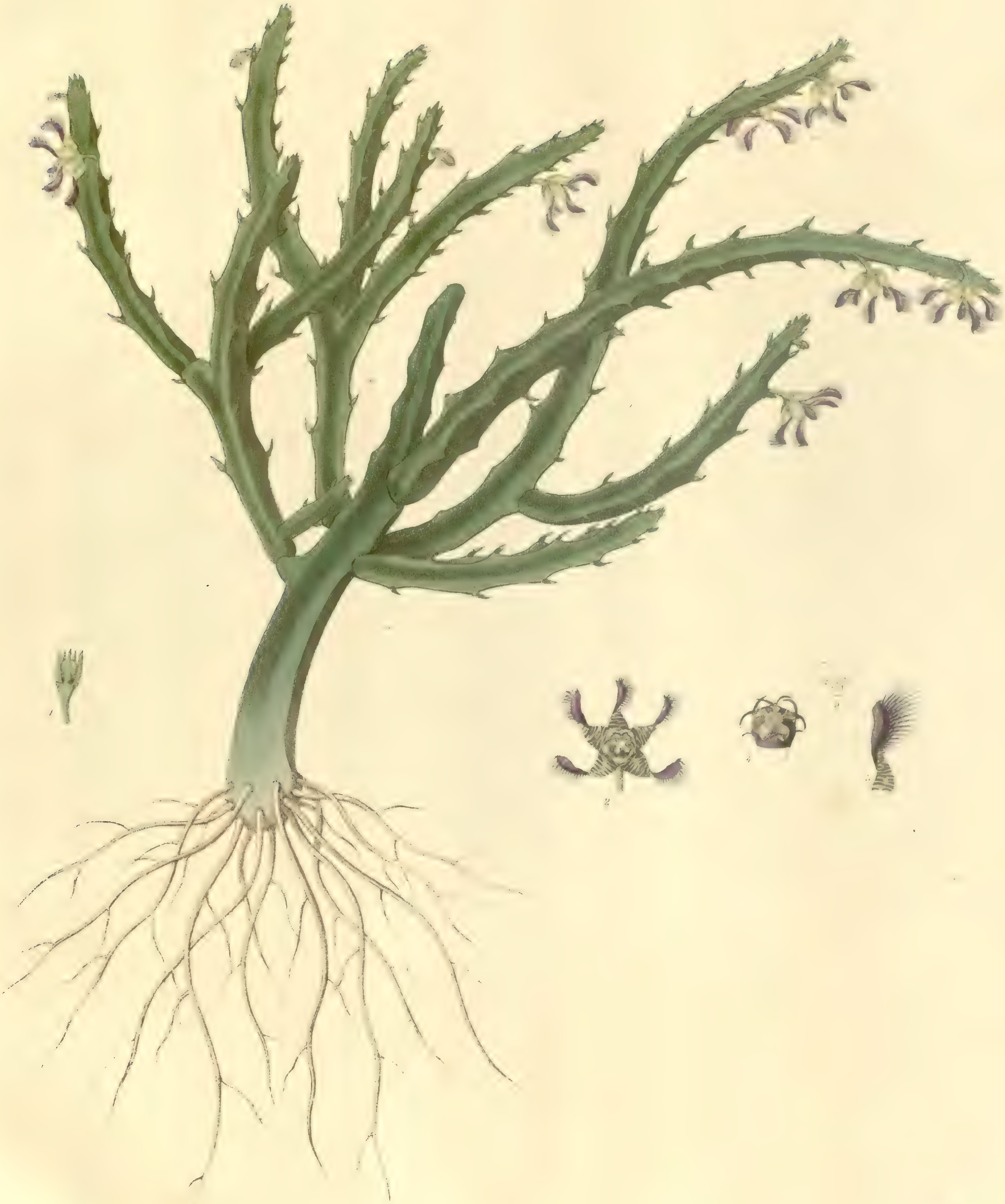
Plate IX. Fig. 1. Spike before expansion. 2. Flower. 3. The same, with the outer limb turned back to show the stamen. 4. The same dissected. 5. Stamen much enlarged.

CURCUMA cordata. Tab. 10.

Radice digitato-palmatâ, tuberibus plurimis globosis, ex apice filorum subfusiformium pendulis ; foliis ovato-cordatis, acuminatis, concoloribus, utrinque sericeo-villosis, petiolos longitudine æquantibus ; spicâ centrali, supra vaginas subsessili, oblongo-cylindricâ ; bracteis ovatis, obtusissimis, villosis, ore amplissimo patentibus, comæ lucidis, purpureis apice fusco-maculatis.

Habitat in montibus ripæ Irawaddi e regione Prome, florens tempore pluvioso. In horto Calcuttensi floruit Augusto.

Herba erecto-patens, pedes 2, 3, ad 4 alta. Radix magna, horizontalis, glabra, digitato-palmata, extùs pallidè ferruginea, intùs dilutè flavicans ; lobi cylindrici, digitum minimum crassi, nunc ovati. Tubera plurima, subrotunda, pollicaria, alba, inferiore parte fibrillosa,



[illegible] del.

Printed by Engelmann Graf Coindet & C°

M Gauci lithog

Caralluma fimbriata

Vishnupersaud del^t

Printed by Engelmann, Graf, Coindet & Co

M. Gauci lithog

Curcuma Roscoeana

10

Curcuma cordata

Vishnuper del.

Printed by Engelmann Graf, Coindet & Co

intùs sæpissimè cava, *carne* lacteâ, molli; suspensa filis longis, carnosis, pallidis, a basi valdè crassa sensim attenuatis, apice gracilibus. Caulis crassus, compressus, villosulus, 6—8-pollicaris, constans *vaginis* bifariè imbricatis, dorso rufescentibus, supernè liberis, apice obtusè bidentatis. Petioli erecto-patentes, subbifarii, canaliculati, villosi, folium longitudine subæquantes. Folia ampla, 10-pollicaria ad pedalia, quin majora, ovata, acuminata, basi cordata vel retusa, nunc rotundata, membranaceo-marginulata, plana, obliquè sulcata, villis sericeis, laxis obsita, uniformiter saturatè viridia; suprà nitida, subtus mollissima, pallida, costâ prominente, pilosâ. Spica centralis petiolorum, vix apicem interiorum longiorum attingens, erecta, cylindrico-oblonga, 6—8-pollicaris, uncias 2 lata, ornata *comâ* violaceâ, lucidâ, bracteis constante summis, vacuis, reliquis paulò longioribus, iisdemque solutioribus, apice fusco-sanguineis; suffulta scapo cylindrico, pennam cygneam ferè crasso, salvâ apice 2-pollicari, vaginis foliorum recondito. Bracteæ ovatæ, quinquefariè ordinatæ, obtusissimæ, villosæ, 2—3-floræ, limbo brevi, rotundato, parùm recurvo, sæpiùs dilutè purpureo; fauce amplâ, excavatâ. Flores magni, flavi, supra faucem bractearum parùm elevati. Calyx brevis, clavatus, ore contracto, crenulato. Corollæ tubus gracilis, cylindricus, calyce angustior, eodemque triplò longior, pallidus, supernè ampliatus in limbum magnum, campanulatum, fauce ventricoso-inflatum. Laciniæ *exteriores* 3 tenuissimæ, ovatæ, acutæ, dilutissimè roseæ; suprema subcucullata, infra apicem cuspidata; *interiorum* 2 superiores altè connatæ, introrsum plicatæ et conniventes, acutæ; inferior, sive labellum, magnum, flavum, infundibuliforme, limbo leviter porrecto, obtusè bilobo. Anthera magna, sagittata, filamento difformi, lato, brevi, sinui laciniarum superiorum et interiorum inserto.

This noble species is so very like *Curcuma petiolata* Roxb. (beautifully figured in Mr. Roscoe's splendid work on *Scitamineæ*), that I considered it, at the time I found it, as a large variety only of that plant. But subsequent examination and comparison of these plants in the Honourable Company's botanic garden at Calcutta, has induced me to separate them as two distinct species. Ours is much larger and more stately, having all its green parts beset with long, adpressed, silky hairs. The leaves are more decidedly cordate; they are soft and villous, while in the other plant they are perfectly smooth. The spike is villous; its crown, or coma, glossy and purple, each of its bracts being besides tipped with a dark-red, brownish spot; a purple or lilac tinge always extends more or less downwards upon the exterior margins of the fertile bracts, and sometimes it even reaches those at the base of the spike. In Roxburgh's species the spike is smooth, and the coma of a uniform lilac colour. Our plant grows only, as far as my observation goes, among the thick bamboo forest on the hills opposite Prome; the other is, I believe, limited to Pegu, where I found it in abundance about Rangoon, in flower in August.

Plate X. Fig. 1. Flower with its proper bract. 2. The same, having the dorsal lobe of the outer limb turned down to show the inner limb. 3. The same, with all the outer lobes detached, and the inner and upper ones somewhat expanded. 4. Inner and upper lobes of the corolla, with the anther between them.

MELANORRHŒA.

Sepala 5 in calycem calyptraceum, 5-nervium, caducum, valvatim cohærentia. Petala 5, raro 6, æstivatione imbricantia, persistentia, infra fructum aucta. Stamina plura, distincta, toro convexo inserta. Pistillum 1. Ovarium obliquè lenticulare, stipitatum, 1-loculare, 1-sporum: ovulo suspenso chordâ funiculari liberâ, e fundo loculi adscendente. Stylus lateralis verticis ovarii. Stigma parvum, convexum. Fructus indehiscens, coriaceus, depresso-reniformis, obliquus, pedicellatus, involucro corollino stellatim patente, maximo suffultus. Semen exalbuminosum, decumbens. Cotyledones carnosæ, crassæ. Radicula lateralis, adscendens et in commissuram cotyledoneam replicata.

Classis Linnæana, *Polyandria Monogynia.*

Ordo naturalis, *Terebinthacearum* tribus *Anacardeæ*, Brown.

Habitus: Arbores magnæ facie Semecarpi, omnibus partibus scatentes succo viscido, ferrugineo, a contactu atmosphærico citò in atrum converso; coma latè protensa; folia ampla, coriacea, simplicia, integerrima, decidua, penninervia. Paniculæ florum axillares, oblongæ; fructuum amplæ, laxæ, involucris maximis, rufis, demum ferrugineis ornatæ.

Obs. Characteres generici quoad florem præcipuè a *M. glabra*, quoad fructum a *M. usitata* desumpti; habitus ferè totus posteriorem speciem respicit.

MELANORRHŒA USITATA. Tab. 11 & 12.

Foliis obovatis, obtusissimis, villosis.

Provenit in convalle magna, Kubbu dicta, regni Munipuriani Hindustaniæ, Sillet et Tipperæ contermini; in imperio

Burmanico, et ad oram Tenasserim usque ad Tavoy, inter gradum xxv. et xiv. latitudinis meridionalis. Ipse observavi juxta ripam sinistram Irawaddi fluminis ad Prome; in provincia Martabaniæ ad urbem Martaban, ad Kogun fluminis Saluen et ad Neynti fluminis Attran. Floret initio anni; fructus maturi a fine Martii ad medium Maii.

Nomen vernaculum: Munipurensibus *Kheu;* Burmanis *Theet-tsee* vel *Zit-si.*

Arbor vasta, ramosa et umbrosa, trunco robusto, cortice sordidè fusco, rimoso, ligno ponderoso, compacto, e fusco rufescente, viliori varietati ligni *Swieteniæ Mahagoni* haud absimili. Ramuli crassi, cylindrici, grisei, villosi, a lapsu foliorum cicatricibus majusculis, frequentibus notati; novelli ferrugineo-villosi. Gemmæ axillares et terminales parvæ, ovatæ, acutæ, squamis paucis, coriaceis, villosis, citò dilabescentibus. Folia versus ramorum extremitates approximata, sparsa, patentia, decidua, obovata, obtusa, raró subretusa, nunc oblongo-cuneata, deorsum valdè attenuata, basi acuta, integerrima, subsinuata, lateribus quandoque disparibus; coriacea et firma, spithamæa ad pedalia, utrinque ferrugineo-villosa, mollia, ætate glabriora; suprà atroviridia, subtùs nervo principali crasso, elevato, secundariis numerosis, suboppositis, parallelis, obliquè ad peripheriam excurrentibus, parvâque ab illa distantiâ arcuatim anastomosantibus; venis numerosis, prominulis, reticulatis. Petiolus brevis, nudus, villosus, crassus, basi intumescens, suprà planus, a folio subdecurrente parùm marginatus. Stipulæ nullæ. Inflorescentiam haud vidi; flores aliquot delapsos, emarcidos et cariosos tantùm observavi. Erant parvi et inconspicui, pedicellis insidentes brevibus, teretibus, villosis. Nullum vestigium calycis nisi forsan lineola obsoleta infra corollam. Petala 5 lanceolata, acuminata, bilinearia, purpurascentia, uninervia, pubescentia, ciliata, intùs minutim glanduloso-punctata, persistentia, tria exteriora parùm majora. Stamina 20—30 libera, erecto-patula, petalis paulò breviora, toro conico, elevato undique inserta; filamenta glabra, capillacea; antheræ ovatæ, oscillatoriæ, biloculares, utrinque dehiscentes, albicantes. Ovarium obliquè lenticulare, margine altero rectiore, altero gibboso, parvulum, pubescens, pedicello suffultum proprio, inter stamina e centro tori surgente, 1-loculare, 1-sporum; *ovulum* reniforme, sustentum funiculo libero, e fundo loculi orto, secus angulum hujus rectiorem adscendente, apice incurvato. Stylus lateralis e vertice ovarii, subulatus, pubescens, deciduus. Stigma parvulum, convexum. Discus hypogynus nullus. Panicula fructuum terminalis, ampla, patens, laxa, villosa, constans *cymis* pluribus, pedunculatis, oblongis, nutantibus, 6—7-pollicaribus, ramosis, axillaribus foliorum delapsorum. Pedunculi teretes, villosi, infra divisuras cicatricibus bractearum caducarum. Fructus coriaceus, indehiscens, transversè ovatus, depressus, subreniformis, vertice planâ nudus, hinc gibbosior et porrectior (ideoque excentricus), magnitudine cerasi, glaber, reticulato-venosus, venis viridibus demùm nigricantibus, ruber, glaucescens, plenâ maturitate fuscescens, stipitatus *thecaphoro* clavato, tereti, unguiculari; 1-locularis, 1-spermus, involucratus. Involucrum 5- raró 6-phyllum, patentissimum demùm subreflexum; *foliola* oblonga, obtusa vel paulò retusa, integerrima, 2—3-pollicaria, pubescentia, ruberrima, furfuracea, demùm fusca, coriacea, arida, suprà convexiuscula, subtùs eleganter reticulato-venosa, venis mediis in fasciculum collectis latiusculum, prominulum, ultra basin in unguem brevissimum subproductum. Semen transversè decumbens, magnum. Spermodermium chartaceum, læve, embryonem arctè cingens, vertice crassius et ad latus ejus radiculare exsculptum sulco pro recipienda chorda funiculari lata, plana, e basi fundi oriunda, adscendente, partem spermodermii apici radiculæ oppositam perforante moxque evanida. Embryo magnus, semini conformis, exalbuminosus. Cotyledones crassæ, carnosæ, semiovatæ, obtusæ, gibbosæ, rugosulæ, ad paginam internam planæ arctèque sibi invicem accumbentes, hypogeæ. Radicula brevis, planiuscula, ad extremitatem elevatiorem embryonis locata, adscendens, commissuræ cotyledonum adpressa, basi subbifida, apice inclinata et obtusa. Plumula minuta, occulta, lanceolata.

The first time I met with this very interesting tree was at a small village below Prome, on the river Irawaddi, where a few had been planted; and on my return from Ava I found it again in abundance on the hills surrounding the first-mentioned town; but in both instances the trees were without any fructification. In the Martaban province I had the satisfaction of seeing the tree in great numbers in March 1827, on a small acclivity rising behind the town of Martaban. They were loaded with bunches of red, nearly ripe fruit, but were not very large; few only exceeding thirty feet in height, with a short trunk measuring not more than four or five feet in circumference. The leaves had entirely fallen off, and strewed the ground in every direction. At Neynti, a village on the Attran river, behind the military station at Moalmeyn, I also observed a few trees: and lastly, on the Saluen river towards Kogun. Here they were of greater dimensions than those just mentioned; one of them being forty feet in height, with a stem twelve feet long and eleven in girth at four feet above the ground. One of my assistants brought me fruit-bearing specimens from Tavoy on the Tenasserim coast.

I took with me to Bengal a large quantity of ripe fruits of the Varnish-tree, which germinated freely and produced upwards of 500 strong and healthy plants. Out of several individuals, which I had with me on board the ship in which I came to Europe, I succeeded in preserving only one living plant, which was presented to His Majesty's garden at Kew by the East India Company. Subsequently several other plants have been forwarded from the Calcutta garden to England.

Before leaving Bengal I had an opportunity of identifying our tree with the majestic Kheu, or Varnish-tree of Munipur, a principality in Hindustan, bordering on the N.E. frontier districts of Sillet and Tippera. Mr. George Swinton, chief Secretary to the Bengal Government, (to whose kindness I am indebted for much valuable information concerning the produce of this and other useful trees of India,) obtained for me a supply of ripe fruits from thence, which differed in no respect from those I had seen at Martaban. They vegetated speedily, and produced plants similar to those we already possessed. Captain F. Grant, who has a military command at Munipur, had the goodness to furnish the following particulars.—The tree grows in great abundance at Kubbu, an extensive valley in the above-mentioned principality, forming large forests in conjunction with the two staple timber-trees of continental India, the Saul and Teak (*Shorea robusta* and *Tectona grandis*), especially the former. Numbers of the gigantic woodoil-tree

(*Dipterocarpus*) are also found in company with it. The size of it varies; but in general it attains very large dimensions. Captain Grant speaks of trees having clear stems of forty-two feet to the first branch, with a circumference near the ground of thirteen feet; and he mentions that they are known to attain a much greater size. All the individuals grow in the same manner; that is, they reach a great height before throwing out any branches.

As long since as the year 1812, the late Mr. M. R. Smith, for nearly forty years an inhabitant of Sillet, and during the latter part of that long period a zealous contributor to the Honourable Company's botanic garden at Calcutta, furnished some very curious information concerning our tree to Mr. H. Colebrooke, then in charge of that institution. He must therefore be considered as the first person who brought this valuable tree into notice, although he failed in his endeavours to procure either dried specimens or fresh seeds of it.—I shall here subjoin some of his remarks.

"I have discovered a sort of varnish, which I consider as the identical one made use of by the Chinese in their eastern and north-eastern provinces. It is procurable in great quantities from Munipur, where it is used for paying river crafts, and for varnishing vessels destined to contain liquids, such as oil, ghee (clarified butter), milk, honey, or water. The drug is conveyed to Sillet for sale by the merchants, who come down annually with horses and other objects of trade. The tree which yields it grows to an amazing size. I am informed that it attains one hundred cubits in height, and twenty cubits in circumference, and even more. It forms extensive forests, which commence at a distance of three days' journey from the capital, and stretch in a northerly and easterly direction towards China for many miles."

That the *Kheu* which Mr. Smith describes is the same as that found by Captain Grant, there cannot be any doubt; nor that it is identical with the *Theet-tsee*, or Varnish-tree of the Burmese. It follows, hence, that the tree has a very wide geographical range, extending from Munipur (in latitude 25° N. and longitude 94° E.) to Tavoy (in latitude 14°, longitude 97°). The valley of Kubbu, which has been ascertained by actual survey, made by Lieutenant Pemberton, to be only five hundred feet above the plains of India, is distant two hundred miles from the nearest sea shore. The tree there attains its greatest size, and I believe it becomes smaller as it approaches the sea on the coast of Tenasserim, where it grows in comparatively low situations.

Our tree belongs to the Deciduous class, shedding its leaves in November, and continuing naked until the month of May, during which period it produces its flowers and fruit. During the rainy season, which lasts for five months, from the middle of May until the end of October, it is in full foliage. Every part of it abounds in a thick and viscid greyish-brown fluid, which turns black soon after coming in contact with the external air. In the *Edinburgh Journal of Science*, vol. viii. page 96 and 100, there are two interesting articles, containing valuable information concerning the varnish produced by our tree, and its deleterious effects on the human frame. It is a curious fact, that, to my certain knowledge, the natives of the countries where the tree is indigenous never experience any injurious consequences from handling its juices: it is strangers only that are sometimes affected by it, especially Europeans. Both Mr. Swinton and myself have frequently exposed our hands to it without any serious injury. I have even ventured to taste it, both in its recent state and as it is exposed for sale at Rangoon, and have never been affected by it. It possesses very little pungency, and is entirely without smell. I know, however, of instances where it has produced extensive erysipelatous swellings, attended with pain and fever, but not of long duration. Of this description was the effect it had on the late Mr. Carey, a son of the reverend Dr. W. Carey, who resided several years in the Burma empire. Among the people who accompanied me to Ava, both Hindus and Mahomedans, no accident happened, although they frequently touched the varnish, except in a slight degree to one of my assistants, whose hand swelled and continued painful during two days. Dr. Brewster informs me that, after resisting its effects for a long time, it at length attacked him in the wrist with such violence that the pain was almost intolerable. It was more acute than that of a severe burn, and the Doctor was obliged to sleep several nights with his hand immersed in the coldest water. He considers it as a very dangerous drug to handle. One of his servants was twice nearly killed by it.

In the neighbourhood of Prome a considerable quantity of varnish is extracted from the tree; but very little is obtained at Martaban, owing, as I was told, to the poverty of the soil, and partly also to the circumstance of there being none of the people in that part whose business it is to perform the process. This latter is very simple: short joints of a thin sort of bamboo, sharpened at one end like a writing-pen, and shut up at the other, are inserted in a slanting direction into wounds, made through the bark of the trunk and principal boughs, and left there for twenty-four or forty-eight hours, after which they are removed, and their contents, which rarely exceed a quarter of an ounce, emptied into a basket made of bamboo or rattan previously varnished over. As many as a hundred bamboos are sometimes seen sticking into a single trunk during the collecting season, which lasts as long as the tree is destitute of leaves, namely from January until April; and they are renewed as long as the juice will flow. A good tree is reckoned to produce from 1½ to 2, 3, and even 4 Viss annually, a Viss being equal to about 3½lbs. avoirdupois. In its pure state it is sold at Prome at the rate of one Tical, or 2*s.* 6*d.* the Viss. At Martaban, where every thing was dear when I was there, the drug was retailed at 2 Madras rupees per Viss; it was of an inferior quality, and mixed with sesamum oil; an adulteration which is often practised.

The extensive use to which this varnish is applied, indicates that it must be a very cheap commodity. Almost every article of household furniture destined to contain either solid or liquid food is lacquered by means of it. At a village close to Pagam on the Irawaddi, called Gnaunee, where this sort of manufacture is carried on very extensively and to great perfection, I endeavoured to obtain some information relating to the precise mode of lacquering: but I could learn nothing further than this,—that the article to be varnished must first be prepared with a coating of pounded calcined bones; after which the varnish is laid on thinly, either in its pure state or variously coloured by means of red or other pigments. I was told that the most essential as well as difficult part of the operation consists in the process of drying, which must be effected in a very slow and gradual manner; for which purpose the articles are placed in damp and cool subterraneous vaults, where they are kept for several months until the varnish has become perfectly dry. Another object for which the drug is extensively employed, is as a size or glue in the process of gilding; nothing more being required than to besmear the surface thinly with the varnish, and then immediately to apply the gold leaf. If it is considered how very extensively that art is practised by the Burma nation, it being among their most frequent acts of devotion and piety to contribute to the gilding of their numerous religious edifices and idols, it will be evident that a great quantity of the drug must be consumed for that purpose alone. Finally, the beautiful Pali writing of the religious order of the Burmas on ivory, palm-leaves, or metal, is entirely done with this varnish, in its native and pure state.

I was not so fortunate as to see the tree while in flower, or to procure specimens of it in that state. But the examination of its fruit and of some decayed old flowers, which I found under the trees, has enabled me to establish it into a perfectly distinct new genus. A few days before I left India I obtained specimens in flower, but without any fruit, of a second species from Tavoy, which have aided me in completing the generic character. The genus is allied to most of those which form the tribe of *Anacardeæ;* but it differs from them all in having a calyptriform, one-leaved, caducous calyx, a persistent corolla which enlarges into a spreading involucrum, indefinite stamens, a free ovarium, and a dry fruit, supported by an unaltered proper pedicel.

I shall conclude by a few remarks on each of the genera to which *Melanorrhœa* approaches.

Anacardium and *Semecarpus* have their fruit resting on an enlarged and fleshy peduncle or torus, and the latter genus has three styles and a distinct hypogynous disc.

Holigarna, a genus to which Mr. Brown has referred many years ago in his Appendix to Tuckey's Expedition to Congo, is very distinct, by its inferior, adherent fruit. Both *H. longifolia* and *H. racemosa* Roxb. produce an acrid juice, which is used as a varnish. My friend and predecessor Dr. Hamilton, by whose death the world has recently lost a very learned and excellent naturalist, informed me that he knew nothing of the Burmese Varnish-tree, if different from a species of *Holigarna*. In the collection of specimens, which he brought away from Ava, and among the descriptions and drawings belonging to them, all of which are deposited in the Banksian Herbarium, I can find no trace of this last-mentioned tree, nor did I meet with it during my visit to that country.

Buchanania has a crenate or lobed disc round the sessile ovarium, 5 styles, and a baccate, naked drupe.

Astronium resembles our genus in having an involucred fruit; but it is the persistent calyx and not the corolla which enlarges: it has besides a sessile ovarium and 3 styles. Its leaves are compound.

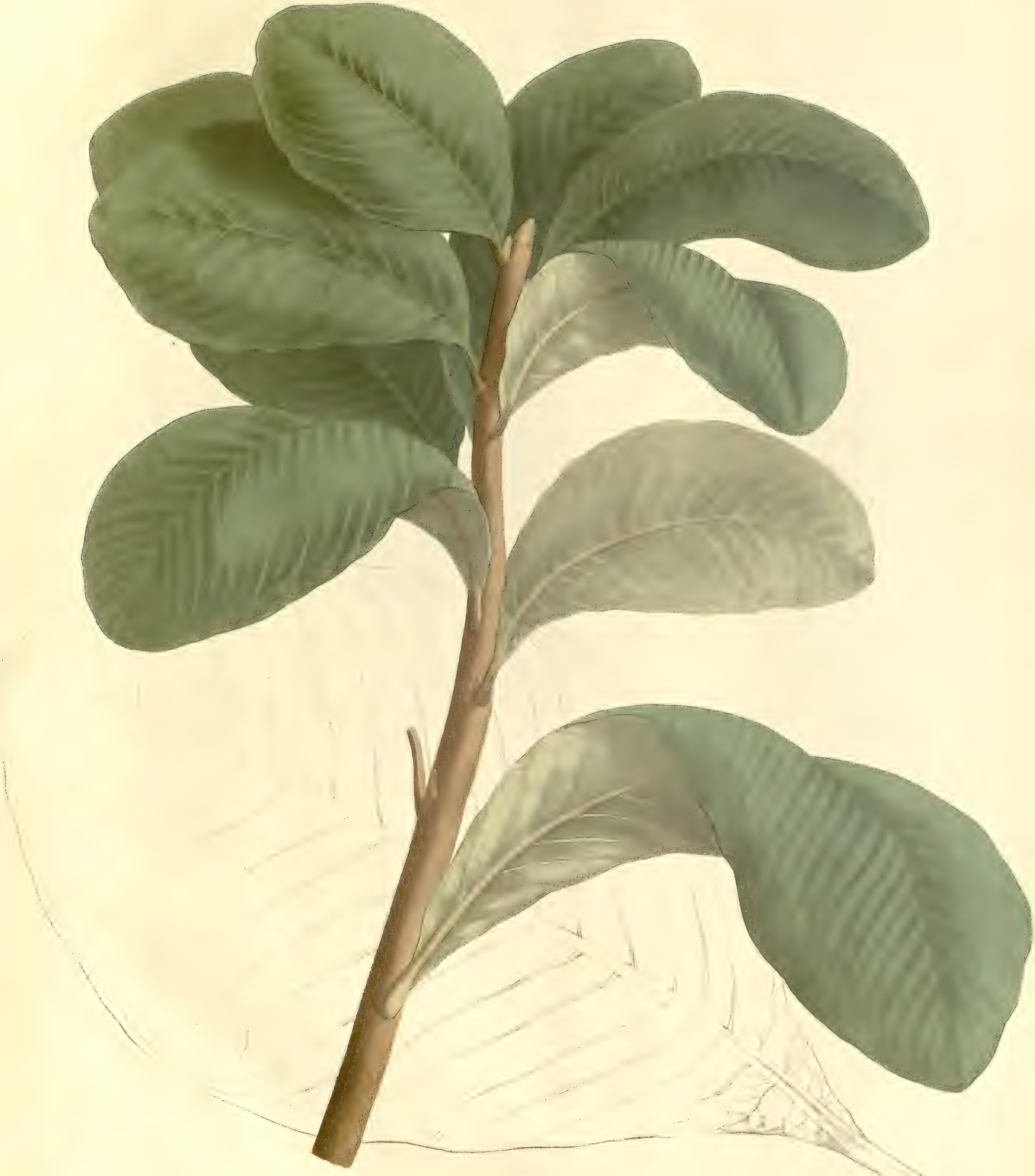
Augia of Loureiro (not to be confounded with *Augea* Thunb., a Cape plant belonging to a widely different family) has polyandrous flowers; but the fruit is naked and sessile. Its leaves are pinnate. According to Loureiro the varnish produced by this tree is that which is commonly used in China and Siam. Neither this nor the following genus has been noticed by subsequent botanical writers.

Stagmaria verniciflua Jack. (in Malayan Miscellanies, vol. ii. Append. 3. p. 12.) has a tubular calyx, 5 stamens, a stipitate, 3-celled ovarium, and a naked berry, containing a pseudo-monocotyledonous embryo. It is a native of the Malayan islands, and is the same as *Arbor Vernicis* of Rumphius, according to whom, Mr. Jack observes, it is the tree, which yields the so much celebrated Japan lacquer or varnish, as well as that of Siam and Tonquin; although Loureiro represents the varnish of the two last countries as being the produce of a different tree. Mr. Jack adds, that under the article *Sanga* in the *Encyclopédie Botanique*, part of Rumphius's account is given, but by a singular mistake the tree is conjectured to be a *Hernandia;* and that, in the first volume of the same work, the *Arbor Vernicis* is made *Terminalia vernix;* an error which has not been corrected by later authors.

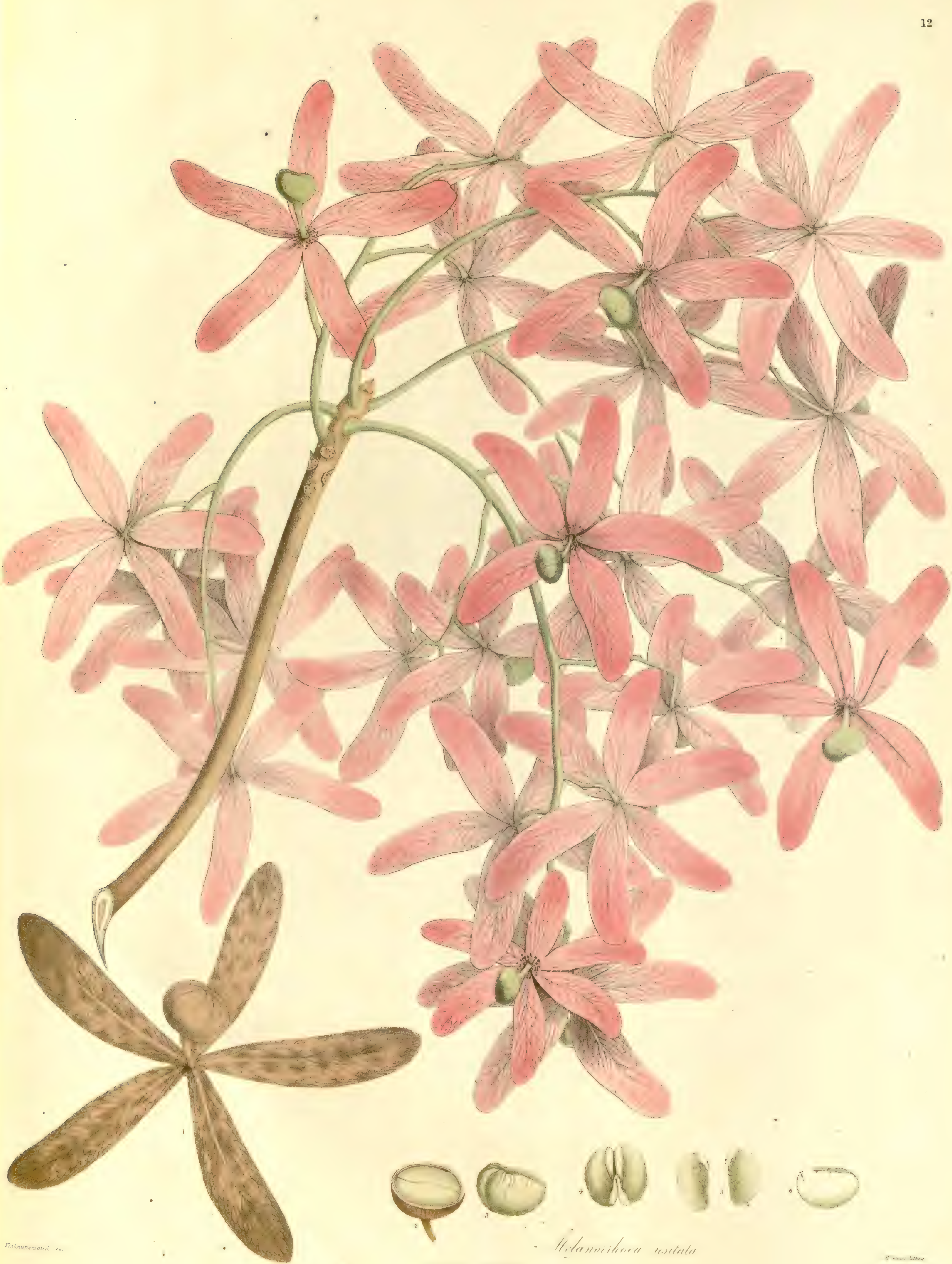
Rhus and *Mauria* differ in having a sessile, naked fruit, and foliaceous cotyledons.—I take this opportunity of remarking that my *Rhus juglandifolia*, which I cannot distinguish from Kæmpfer's *Sitz* or *Sitzdsju*, owes its specific name to a hint thrown out by that author. As there exists a tree so called by Willdenow, Professor Decandolle has changed the name to *R. vernicifera*. The coincidence of the Burmese name of *Melanorrhœa usitatissima* with that of the Japan Varnish-tree is remarkable.

Plate XI. A branch with leaves.

Plate XII. A naked fruit-bearing branch a little before maturity. Fig. 1. A detached fruit, perfectly ripe, showing the large involucrum. 2. A fruit cut across in the middle. 3. Seed. 4. The same with the cotyledons a little separated. 5. Cotyledons. 6. The same seen from the inner smooth surface.



Melanorrhoea usitata



Vishnupersaud del.

Melanorrhoea usitata

Printed by Engelmann Graf Coindet & Co

M. Gauci lithog.

HIRÆA HIRSUTA. Tab. 13.

Foliis obovatis, brevè acuminatis, basi retuso-subcordatis, utrinque, ramis paniculisque vestitis pilis longis, patentibus; samaris oblongis, dorso nudis, apice emarginatis.

Habitat in Imperii Burmanici montibus Prome vicinis, et ad basin montis Taong Dong dictæ, florens et fructigera a mense Augusti usque ad finem anni.

Frutex altè volubilis, ramosissima, summis partibus laxè nutantibus. Rami cylindrici, longissimi, graciles, ad insertionem petiolorum lineâ obsoletâ annulati, uti folia utrinque pedunculique obsiti pilis copiosissimis, longis, erectis, patentibus, dilutè ferrugineis, basi simplici punctulo elevato insertis. Folia opposita, patentia, distantia, ovata vel obovata, acumine brevi, lanceolato, angusto terminata, integerrima, basi retusa vel subcordata, lobis rotundatis, brevibus; palmaria, coriacea, ciliata, utrâque paginâ pilosa, subtùs glaucescentia, costâ elevatâ, nervis suboppositis, versus marginem arcuato-anastomosantibus, venis transversis, reticulatis; *floralia* ovalia, minora et approximatiora. Petioli breves, unguiculares, suprà leviter sulcati, basi vix incrassati. Stipulæ oppositæ, minutæ, subcarnosæ, ciliatæ, lineares, ab axillis parùm remotæ, deciduæ. Paniculæ axillares terminalesque, oppositæ, solitariæ, pedunculatæ, erecto-patulæ, folia subæquantes, fructigeræ nutantes iisdem longiores, bis terve oppositè ramosæ, paniculam amplam terminalem formantes. Pedunculi graciles, filiformes, valdè pilosi, pilis curvis, subdecumbentibus, medio insertis. Bracteæ oppositæ, lineares, pilosæ, semiunguiculares. Flores parvi, ex albo flavicantes, inodori, fasciculati, vel subumbellati, elongatione pedunculi partialis demùm subracemosi, suffulti *pedicellis* unguicularibus, subcapillaceis, basi munitis *bracteolâ* lineari, deciduâ. Calyx eglandulosus, glaber, ovatus, 5-partitus; *laciniæ* lanceolatæ, acutæ, ciliatæ, post florescentiam reflexæ. Petala 5, subrotunda, obtusa, concaviuscula, calyce duplò longiora, æstivatione imbricata. Stamina 10, erecta, corollam subæquantia, alterna breviora; *filamenta* alba, capillacea, basi ferè libera; *antheræ* oblongæ, erectæ, utrinque dehiscentes. Ovarium glabrum, 3-lobum, 3-loculare; lobi ad dorsum depresso-plani; *ovula* solitaria, medio axis appensa. Styli 3, leviter divaricati, glabri, stamina subæquantes, persistentes. Stigmata carnosa, clavata, glabra. Samaræ 3, oblongæ, læves, 2-pollicares, utrinque obtusæ, apice emarginatæ, lateribus parùm recurvatis, marginibus subrepandis, dorso concaviusculo nudæ, ventris medio insertæ sinubus receptaculi 3-dentati, parvuli, e fundo calycino orti; unitæ in samaram compositam, triangularem, pedunculatam. Loculamentum centrale, lineare, coriaceum, intùs carinatum styloque brevi, persistente auctum, extùs circumdatum alâ membranaceâ, scariosâ, fuscâ, radiatim nervosâ, reticulato-venosâ. Semen loculo conforme, lineas 4 longum, integumento tenuissimo, ferrugineo obtectum. Perispermum nullum. Embryo rectus, albus. Cotyledones planæ, longæ, lineares. Radicula oblonga, brevis, leviter complanata, supera.

This extensive climber may be easily distinguished by the long and rust-coloured hairs, which cover all its parts, and which are nowhere, except on the partial peduncles, mixed with those decumbent, centrally adfixed bristles, so remarkable in the genus *Hiræa*.

The following are the other East Indian species, which have come under my observation.

H. indica Roxb. Decand. Prodr. 1. 585. I have had specimens of this very variable shrub from Chittagong in the eastern part of Bengal; I have likewise found it in the province of Martaban.

H. nutans Roxb. Decand. loc. cit. Wild specimens were gathered by one of my plant-collectors on the lower range of hills at Kamoon; but as they are without fruit, I am not quite certain whether they belong to this or the following species.

H. lanuginosa Nobis: foliis ovato-cordatis, attenuatis, acuminatis, suprà glabris, subtùs lanugine densâ, adnatâ vestitis; samaris ovatis, retusis, dorso nudis.

A native of the mountains surrounding the great valley of Nepal, where I found it in flower in June, and in fruit in the month of October.

H. cordata Heyn.: foliis cordatis, in acumen latissimum, valdè elongatum productis, subtùs lanuginosis.

Specimens of this are preserved in the collection of the late Dr. B. Heyne, now in the Museum of the Honourable East India Company. It is remarkable, chiefly, on account of the long and broad point, which terminates its leaves. It appears to be intermediate between *Hiræa nutans* and *H. lanuginosa*, of either of which species it may perhaps only be a variety. I have not seen the fruit. The peninsula of India is probably its native country.

H. concava Nobis: foliis oblongis, attenuato-obtusis, basi rotundatis, utrinque glaberrimis; samarâ suborbiculatâ, dorso cristatâ.

I found this shrub very sparingly near the sea-shore at Amherst in the province of Martaban, in fruit in February.

H. orbiculata Roxb. Hort. Beng. Append. p. 90: foliis orbiculatis, subtùs paniculisque villosis, samarâ orbiculatâ, dorso cristatâ.

I know this species only from the Manuscript *Flora Indica* of the late Dr. Roxburgh, who says it is a native of Chittagong.

Plate XIII. Fig. 1. 2. Flower. 3. The same dissected. 4. Fruit, consisting of three samaras united together in the centre. 5. The same cut across in the middle. 6. The same, one of the samaras being removed to show the insertion of the other two. 7. A detached samara cut across in the middle. 8. Cell of the samara opened, showing the position of the embryo and the funicular chord detached from the wing. 9. Embryo.

CARDIOSPERMUM CANESCENS. Tab. 14.

Cano-villosum, foliis biternatis, foliolis cuneato-obovatis, grossè serratis, intermedio subpetiolato, basi cuneatâ integerrimo, lateralibus sessilibus.

Frequens secus ripas Irawaddi, ad Pagamew, Prome, Segaen, et Avam. Etiam observavi in Martabania. Floret et fructificat toto anno.

Planta annua, scandens, ramosissima, omnibus partibus pallida et incana a villositate mollissima, copiosa. Rami elongati, filiformes, gracillimi, teretes, 5-sulcati. Folia alterna, patentia, biternata, circumscriptione triangularia, 2—3-pollicaria, summa simpliciter ternata. Foliola cuneato-obovata, acuta, extrorsum serraturis utrinque paucis, magnis, basi integerrima et attenuata, subpetiolata, pollicaria, utrinque cano-villosa et mollia, præcipuè subtùs; lateralia dimidiò minora, oblongata, subsessilia, basi acuta, haud attenuata. Petioli gracillimi, villosi, suprà leviter sulcati, subtùs angulati, pollicares vel sesquipollicares; *partiales* dimidiò breviores. Stipulæ nullæ. Pedunculi solitarii, foliis oppositi, eademque longitudine æquantes, filiformes, villosi, patentes, sulcati, apice incrassatâ inæqualiter bifidi, 6—8-flori. Cirrhi 2, aliquot linearum a bifurcatione distantiâ pedunculo inserti, graciles, pollicares, planiusculi, integri, circumvolutione simplici vel duplici spiraliter torti. Flores albo-viridescentes, inodori, *pedicellis* brevibus, villosis suffulti. Calyx subpersistens, 4-sepalus; *sepala* 2 exteriora valdè parva, ovata, acuta; *interiora* oblonga, illis quadruplò majora. Petala 4, stellatim patentia, ovalia, *appendicibus* duabus cucullatis, petaloideis, adque basin *glandulis* duabus flavicantibus instructa. Capsula inflato-trigona, ferè globosa, glauca, pubescens, pollicaris.

Although much resembling *Cardiospermum Halicacabum* L., which I have also found in the Burmese countries, our plant differs in various essential points. Instead of being smooth and dark-green, it is of a pale, glaucous colour and densely covered with soft pubescence. Its leaflets are short, obovate or cuneate, tapering downwards; in the Linnæan plant they are long and narrow, and attenuated upwards into a long point. In colour and pubescence it approaches to *C. Corindum* L., of which I have seen specimens in the Banksian Herbarium, gathered in the West Indies by Houstoun and Rohr, but in the figure of the leaflets it differs nearly in the same manner, as it does from the first-mentioned species.

Plate XIV. Fig. 1. 2. Flower. 2. The same dissected.

ABELIA. (Brown apud Abel, in Itin. Chin. Append. B. p. 376.)

Calyx foliaceus 5- vel 2-partitus. Corolla subinfundibuliformis, 5-loba. Stamina 4, didyma vel subæqualia. Ovarium 3-loculare; *loculis* 2 polyspermis, abortientibus! tertio 1-spermo, fertili. Pericarpium 1-spermum, exsuccum, indehiscens, calycis limbo foliaceo, aucto coronatum.—*Brown MSS.*

Classis Linnæana, *Didynamia Angiosperma.*—Brown loc. cit.

Ordo naturalis, *Caprifoliaceæ veræ* Brown; *Caprifoliacearum sectio* 1. Juss. Gen. p. 211, *Linnææ* prox.—*Brown.*

Habitus: Frutices. Folia opposita, petiolata, dentato-crenata, vel integerrima. Inflorescentia varia.—*Brown.*

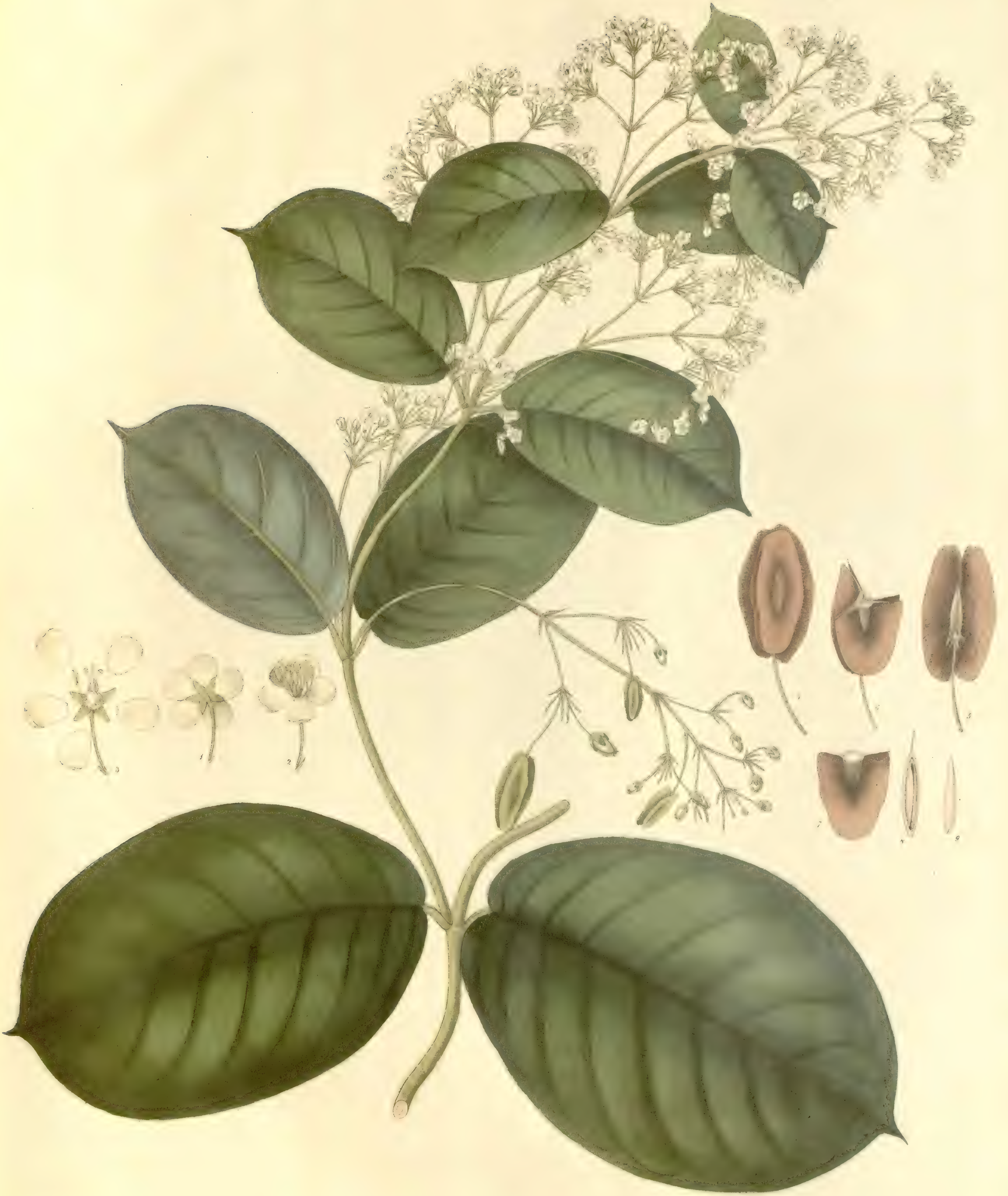
ABELIA TRIFLORA. (Brown MSS.) Tab. 15.

Floribus corymbi congesti ternatis: lateralibus 3-bracteatis; calycibus 5-partitis; foliis ovato-lanceolatis, acuminatis, integerrimis.—*Brown.*

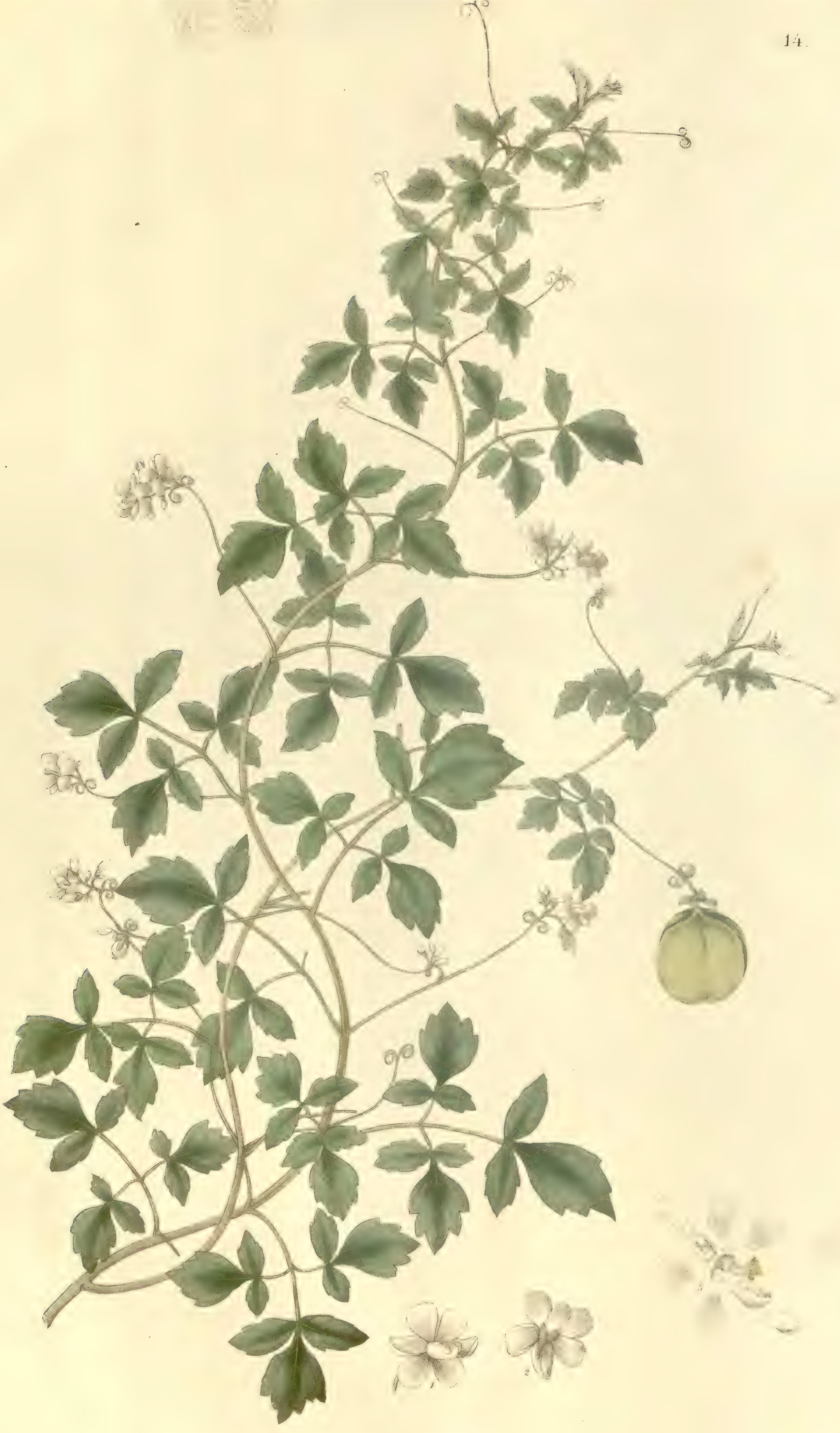
Habitat in montibus meridionalibus provinciæ Kamaon, Himalayam versus, ubi detexit plantarum collector meus Robertus Blinkworth. Floret mense Maii.

Nomen vernaculum *Kumki.*

Arbuscula. Rami oppositi, erecto-patentes, graciles, teretes, utrinque notati sulcis 3 levissimis, sursùm evanescentibus, glabri, cinerei, ad insertionem ramulorum dilatato-tuberculati. Ramuli ad basin circumdati *squamis* aliquot gemmaceis, persistentibus, rotundatis, concavis, fuscis, ciliatis, undique imbricantibus. Folia opposita, patentia, brevè petiolata, lanceolata vel subovato-lanceolata, a basi acuta vel rotundata extrorsum attenuata, acuminata, integerrima, pilis hyalinis vix patulis ciliata, cæterum glaberrima, membranacea, 2—3- quin 4-pollicaria, opaca, subtùs glaucescentia, costâ gracili, elevatâ, nervis tenerrimis, obliquis, parùm reticulatis. Floralia reliquis sæpiùs longiora, basique latiora. Petiolus brevissimus, suprà sulcatus, ad margines sulci pilosulus, basi subtùs gibbosus, ad axillam parùm villosus. Stipulæ nullæ, sed marginula obsoleta, angustissima, ramulum inter insertiones petiolorum ambiens. Flores terminales et ex alis supremis, ternatim fasciculati, laterales brevè pedunculati, intermedius sessilis, ex albo dilutissimè rosei, suaveolentes; fasciculi geminati



Hiraea hirsuta



Goupersaud del: Printed by Engelmann Graf Coindet & Co [illegible]

Cardiospermum canescens

vel ternati, pedunculati, inflorescentiam densam, terminalem, pari foliorum floralium breviorem efformantes. Pedunculi breves, teneri, pilis paucis obsiti. Pedicelli florum lateralium vix ultra lineam longi. Bracteæ sessiles, membranaceæ, pallidè virides, ciliatæ, reticulatæ; floris intermedii solitaria, lanceolata, unguicularis; lateralium utrinque 3, istâ multò minores, ad apicem pedicelli sitæ: harum exterior paulò longior, laterales huic directione contrariæ, ovarium subæquantes. Calyx superus, limbo 5-partito, persistente; *laciniæ* angustissimè lineares, obtusiusculæ, erecto-patentes, 3-nerviæ, reticulatæ, villis longis, numerosis, sericeis, patentibus ciliatæ, cæterum glabræ, æquales, lineas 8 longæ. Corolla infundibuliformis, utrinque pubescens; *tubus* cylindricus, gracilis, lacinias calycis æquans, sursum leviter dilatatus; *limbus* patentiusculus, 5-fidus, æstivatione imbricato-ovatus; *laciniæ* ovatæ, obtusæ, venulosæ, ciliatæ, ferè æquales, tertiam tubi partem longitudine vix superantes; *faux* puberula, pervia. Stamina 4, æqualia, fauce recondita; *filamenta* brevissima, capillacea, infra sinus limbi inserta, basi villosa, lineolis 4 sericeis tubum intùs percurrentia; *antheræ* oblongæ, erectæ, 2-loculares, utrinque longitudinaliter dehiscentes. Ovarium inferum, oblongum, hinc planiusculum, pilosulum, prominenter et inæquali distantiâ 5-nervium, lineas circiter 3 longum, apice in collum breve attenuatum, 3-loculare; *locula abortiva* 2 supra medium 3—4-ovulata, ovulis minutis, subulatis, obliquè ex axi apice fenestrata pendulis, 1-seriatis; *loculum tertium fertile* reliquis parùm amplius, 1-sporum, fundo vacuum; ovulo majusculo, oblongo-ovato, axi supra medium inserto, pendulo. Stylus filiformis, glaber. Stigma clavatum, subcarnosum, antherarum elevationem attingens, cumque iis inclusum. Fructus haud visus.

"This new species of *Abelia* has in its inflorescence nearly the same relation to *Abelia chinensis*, that *Caprifolium* has to *Xylosteum;* the central flower present in *A. triflora* and in *Caprifolium* being abstracted in *Xylosteum* and in *A. chinensis*. In a third species (*Abelia uniflora*) sent from China by Mr. John Reeves, and for a specimen of which I am indebted to the Horticultural Society, another modification of inflorescence occurs. The peduncles in this species have but one flower, which is considered as one of the lateral flowers, the ovarium being subtended by three bracts, placed exactly as in those of the corresponding flower of *Abelia triflora*.

"Of the Natural Order *Caprifoliaceæ*, the only certain genera appear to me to be,—*Caprifolium*, *Xylosteum*, *Symphoricarpus*, *Linnæa*, *Abelia*, *Diervilla*, (to which belongs *Weigelia* of Thunberg, who described the epigynous gland as the ovarium, which he overlooked,) *Triosteum* and *Leycesteria* of Dr. Wallich. I am not acquainted, however, with any other character distinguishing them from the genera, which have hitherto been associated with them, except the very minute one of the raphe, or adnate portion of the funiculus umbilicalis, being on the outer instead of the inner side of the ovulum."—*Brown MSS.*

My plant-collector, who discovered this elegant species on the highest mountains of Northern and Western Kamaon, towards the Himalaya, informs me that it grows to a "middling-sized tree, and that its flowers are delightfully fragrant like those of *Jasminum revolutum*."

It is with much satisfaction that I find myself able to add a new species to a genus, long since consecrated by Mr. Brown to a mutual friend, now no more, whose private worth and scientific attainments I had many opportunities of appreciating, and whose premature death science will long have cause to regret.

For the generic and specific characters and observations belonging to this and the three following plants, I am indebted to the liberality of my inestimable friend R. Brown, Esq., under whose direction the drawings were executed by the accurate hand of Mr. Charles Curtis. It must be evident to every one, how much valuable aid I have derived in my description of the plants from Mr. Brown's minute and masterly dissections. His absence from England at this moment unfortunately prevents me from adding that detail (more particularly as far as regards the two species of *Cometes*) which would assuredly have been supplied by him had he been on the spot. It enables me, however, to take this opportunity of expressing those feelings of admiration and respect, with which his name has for nearly twenty years inspired me, and which have been augmented, since my return from India, by those of gratitude for the most important assistance in my labours.

Plate XV. Fig. 1. A fascicle of flowers, immediately after the corollas have fallen off, showing the position of the bracts. 2. Flower-bud. 3. Flower. 4. Corolla opened, showing the stamens. 5. Calyx and pistil. 6. Stamen viewed in front. 7. The same viewed sideways, showing the bursting of the anther. 8. A grain of pollen. 9. 10. Ovarium viewed in two aspects, exhibiting the arrangements of the nerves. 11. The same cut across in the middle. 12. The same having two of its cells opened lengthways, one of them containing three abortive ovula, the other containing a solitary fertile ovulum.

MATONIA. (Brown MSS.)

SORI dorsales, rotundi, e puncto confluentiæ venularum plurium orti. INDUSIUM orbiculatum, peltatum. CAPSULÆ sessiles, in serie simplici circa receptaculum dispositæ.—*Brown.*

Systema Linnæanum, *Cryptogamia Filices.*

Ordo naturalis, *Filices*, tribus *Polypodiaceæ.*—Brown.

Habitus: Filix pulcherrima, lævis, fronde subbipinnatâ. Pinnæ plures hinc superiores, pauciores inde secundæ, omnes pinnatifidæ, lobis integerrimis, singulis basi, nunc utroque latere, nunc inferiore tantùm monosoris, raró bisoris. —*Brown l. c.*

Genus valdè distinctum a Roberto Brown dicatum amico suo Georgio Maton, M.D., Collegii Regii Medicorum necnon Societatis Regiæ Socio, Societatis Linnæanæ Vice-Præsidi; viro æstumatissimo, historiæ naturalis scrutatori indefesso, botanico perito, scriptisque variis optimè merito. Nomen *Matoniæ*, quod b. Smith generi *Elettariæ* a cel. Matonio condito imposuit, relinquendum est, teste ipso nominis donore, in Supplemento Cyclopædiæ Reesianæ.

MATONIA PECTINATA. Tab. 16.

MATONIA PECTINATA. *Brown MSS.*

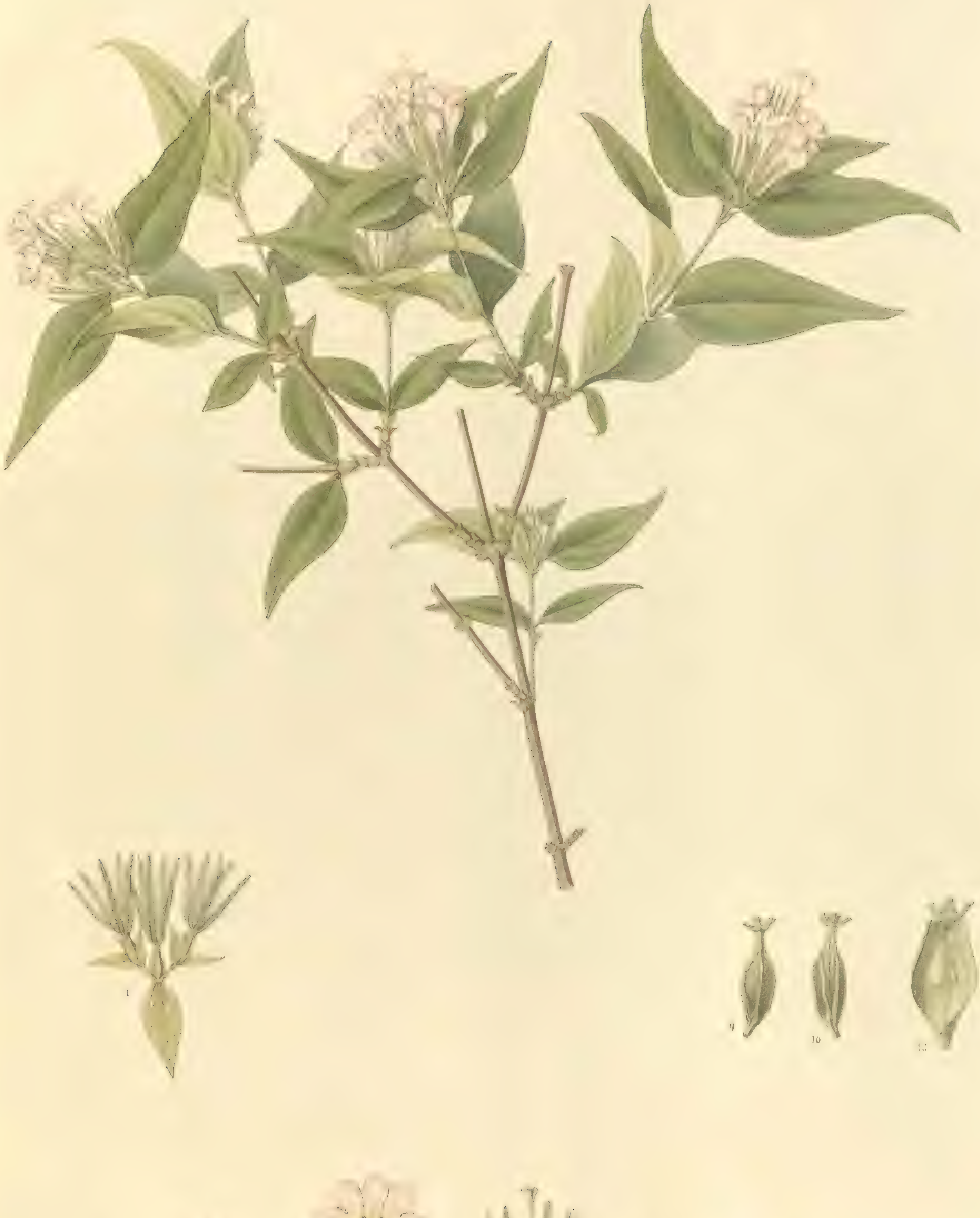
Habitat in monte vulgò Ophir dicta, 4000 ferè pedes alta, milliaria 36 ab urbe Malacca distante, versus cacumen, ubi anno 1815 detexit Gulielmus Farquhar, Militum Tribunus.

FILIX sesquipedalis, adscendens, apice recurvata, lætè viridis, lævis, hinc lucida, inde glauca. STIPES fuscus, nitidus, 10-pollicaris, suprà exaratus sulco lato, plano, acutè marginato, subtùs convexus, basi calamum scriptorium crassus, sursum parùm attenuatus. FRONS magna, adscendenti-recurvata, subbipinnata, pedem circiter longa, uncias 10 lata, rigidiuscula. PINNÆ 14, planæ, lineares, approximatæ, lineari-ensiformes, profundè pinnatifidæ, utrinque attenuatæ, pectinato-acuminatæ, per petiolum pollicarem marginulâ integrâ usque ad basin ferè decurrentes, suprà lucidæ, subtus glaucæ, costâ valdè elevatâ, dorso planâ ideoque subtetragonâ, spithamææ, mediæ longiores; plurimæ sursùm unilaterales, erectæ et strictæ, approximatissimè insertæ margini superiori, convexo rachis planæ, 2-pollicaris; duæ exteriores deorsum unilaterales vel secundæ, petiolis brevissimis basi subconnatis, harum inferior uti terminalis frondis reliquis multò breviores, 3-pollicares. LACINIÆ alternæ, parallelæ, approximatæ, lanceolatæ, obtusiusculæ, levissimè sursùm falcatæ, integerrimæ, marginibus parùm recurvis, mediæ profundius separatæ, supremæ et infimæ subconfluentes, suprà secus venarum tractus minutim striatulæ, subtus 1-nerviæ, nervo prominulo, planiusculo, venis copiosis, parallelis, obliquis, semel bisve furcatis, anastomosantibus, ad soros radiatim convergentibus punctoque insertionis confluentibus. SORI ad basin laciniarum, mediò inter nervum et marginem utrinque, quandoque ad unum tantùm nervi latus solitarii, raró duo, sessiles, parvi, farcti, depresso-globosi, fusci, glaucescentes, glabri, vertice torulosi prominentiis aliquot minutis, centro elevato subumbilicati.—" INDUSIUM depresso-sphæroideum, capsulas omninò includens, hemisphærio superiore crassiusculo, inferiore tenuissimo, membranaceo, capsulis arctè applicito, et mox subevanido. RECEPTACULUM parvum, paulŏ elevatum. CAPSULÆ annulo obliquè verticali, incompleto cinctæ. SEMINA angulata."—*Brown MSS.*

"The beautiful ramification of the veins, and their union, from which the sorus originates in *Matonia*, is not altogether peculiar to it. Among those genera of *Polypodiaceæ* having an indusium, one remarkable example occurs in a genus as yet undescribed (*Hypoderris*), which, with an indusium not materially different from that of *Woodsia*, has exactly the habit of *Aspidium trifoliatum*: while of those genera of *Polypodiaceæ* which are without an indusium, the same kind of vascularity is found in an extensive and very natural section of *Polypodium*, to which *Polypodium phymatodes* and the greater number of those species *soris saccatis* belong."—*Brown.*

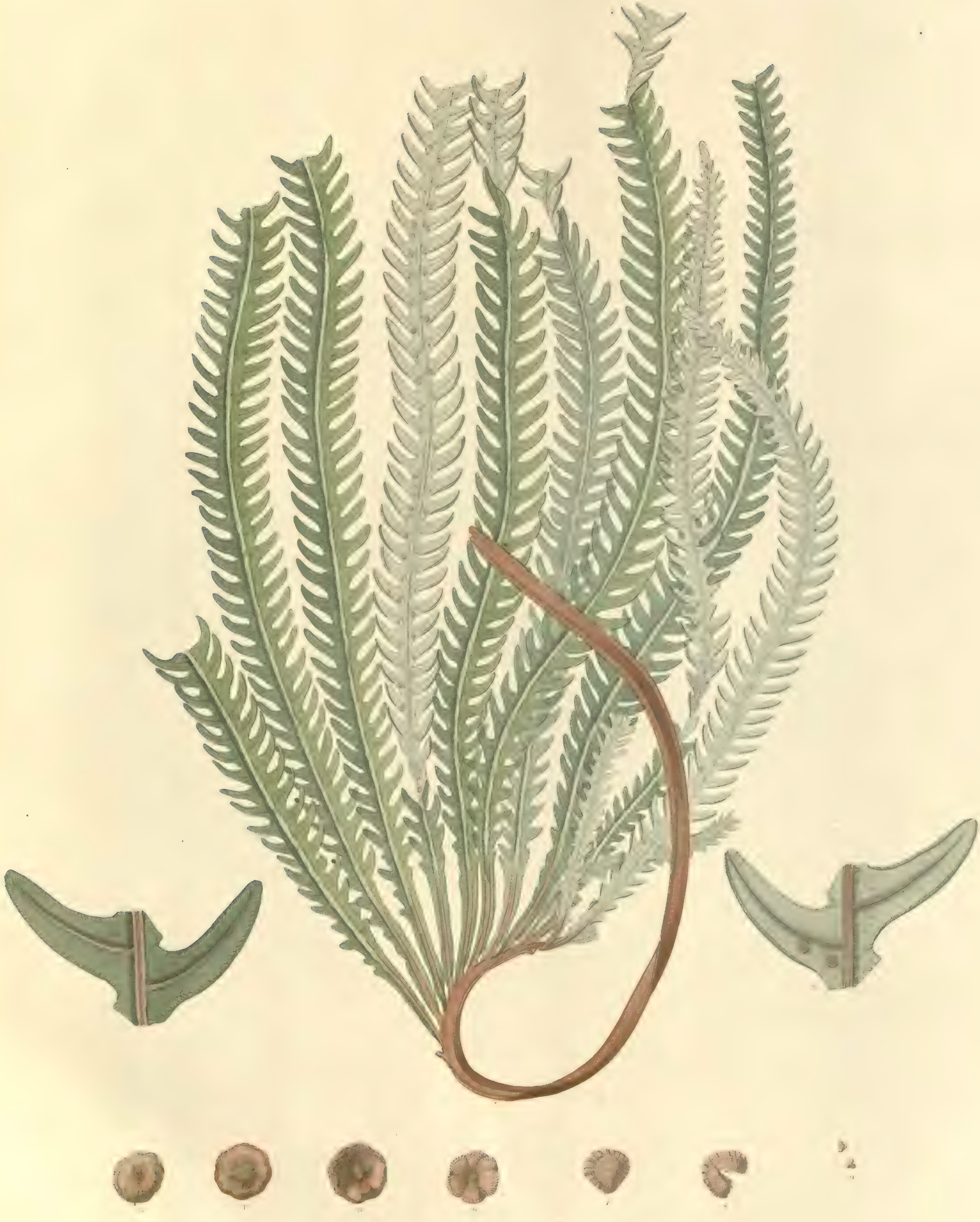
The specimen which has been described above, and of which Plate XVI. is an exact representation, is probably unique in Europe. I received it from my late friend Mr. Jack, to whom it had been presented by our mutual friend Colonel W. Farquhar. This gentleman discovered the fern towards the summit of a very lofty mountain, distant about thirty-six miles from the town of Malacca, where he met with only a single individual of it. When I visited Singapore in 1822, I saw a coloured drawing in the possession of Colonel Farquhar, executed by a Chinese artist, representing the fern in a decumbent position, with an ascending and spreading frond. In its natural state I suppose this most beautiful plant is erect or ascending, with the frond horizontally spreading, recurved and fan-shaped; the upper pinnæ being erect, and the outer and lower ones descending. Its texture is firm like that of a *Mertensia.*

Plate XVI.* Fig. 1. 2. Part of a pinna viewed from both sides, showing the curious arrangement of the veins at the insertion of the sorus. 3. A detached sorus seen from below. 4. The same seen from the top. 5. Inside of the indusium. 6. Capsules inserted round the central receptacle. 7. A detached capsule. 8. The same burst open. 9. Seeds.


1
9
10
12
2
3
4
5
11
6
7
8

Cha^s M. Curtis del^t
Printed by Engelmann, Graf Coindet & Co
M. Gauci lithog

Abelia triflora



Matonia pectinata

COMETES. (Burm. Flor. Ind. p. 39.)

Calyx 5-partitus. Petala nulla. Stamina imo calyci inserta, ferè hypogyna, antherifera 5, infrà cum totidem sterilibus membranaceis in urceolum connata. Antheræ 2-loculares. Ovarium 1-spermum, ovulo adscendente, funiculo e basi cavitatis orto. Stylus 1. Stigmata 3. Pericarpium: Utriculus calyce persistente inclusus, appendicibus setaceo-ramosis, post anthesin auctis et expansis involucratus. Semen adscendens, chalazâ laterali. Albumen unilaterale. Embryo periphericus, rectus; radicula infera.—*Brown MSS.*

Classis Linnæana, *Pentandria Monogynia.*

Ordo naturalis. Cum *Pterantho* Forsk. parvulum tribum efformat, hinc *Illecebreis* proximum, inde ad *Amaranthaceas veras* per *Desmochætam*, *Digeram*, et *Saltiam* Nob. hodiè (quæ *Achyranthes papposa* Forsk.) minùs arctè tamen accedens.—*Brown.*

Habitus: Herbæ (annuæ?) ramosæ, oppositifoliæ. Folia integerrima, stipulis scariosis, subsetaceis, vel lateralibus liberis, vel basi cum petiolo connatis. Pedunculi e superioribus alis alterni, apice 3-flori. Bracteæ ternationis singulæ 6, quarum 2 oppositæ communes; reliquæ 4 per paria floribus lateralibus, intra communes pedicello brevissimo insidentibus, pertinentes, subulatæ: singulæ appendice (ramo mutato) axillari, setaceo-diviso, ramulis sub anthesi fasciculatim approximatis, florescentiâ peractâ auctis et patulis, subdivisionibus singulis bracteolâ subulatâ subtensis. —*Brown.*

COMETES SURATTENSIS. Tab. 17.

Foliis cuneato-obovatis, ellipticisve; ramulis lævibus; stipulis petiolaribus; fructus involucri ramulis fasciculatis, imis deflexis.—*Brown MSS.*

Cometes surattensis, *Burm. Flor. Ind. p.* 39. *tab.* 15. *fig.* 5. *Linn. Mant.* 1. *p.* 39. *Guillemin in Dict. Class. d'Hist. Nat. vol.* 4. *p.* 356.

Cometes alterniflora, *Linn. Syst. Nat. ed.* 12. *vol.* 2. *p.* 127.

Ad Sinum Arabicum prope Bussoram lectam communicavit Dom. Robertus Taylor anno 1819.

Planta vix non annua, adscendens, debilis, subcarnosa, pollices 10 vel 12 alta. Radix sublignosa, cylindrica, longiuscula, attenuata, glabra. Caulis teres, alternatim ramosus, ad divisuras leviter tumidus, obsoletè flexuosus, lævis, fistulosus, basi pennam columbinam crassus. Rami tenerrimi, erectiusculi, bis tervè dichotomi, supernè pube copiosâ, hyalinâ obtecti. Folia opposita, patula, cuneato-obovata, cuspidato-acuta, basi attenuata, brevissimè petiolata, pollicaria, subcarnosa, integerrima, lævia, juniora ciliata, pallidè viridia, interstitiis plus dimidiò breviora, superiora eadem æquantia, siccitate propter epidermidem laxiusculam et vesiculosam sublepidota, costâ subtùs vix elevatâ, nervis inconspicuis, capillaribus, obliquis, alternantibus, venis minutim reticulatis. Petiolus vix ultra lineas 3 longus, planiusculus, membranaceo-marginulatus. Stipulæ axillares, oppositæ, setaceæ, ciliatæ, membranaceæ, persistentes, lineam longæ; præterea aliæ 2, medio petioli utrinque insertæ, oppositæ, istis simillimæ sed parùm longiores, patentes. Pedunculi ex supremis axillis alterni, solitarii, nunc terminales, brevissimi, capillares, teretes, villosuli, 3-flori, erectiusculi, foliis dimidiò breviores; *fructiferi* parùm elongati, gracillimi, subnutantes. Flores oblongi, parvi; *laterales* brevissimè pedicellati; *intermedius* sessilis. Bracteæ lineari-setaceæ, brevissimæ, oppositæ, æquales, canaliculatæ, acuminatæ, ciliatæ, persistentes et immutatæ, 6 in singulo fasciculo florum: 2 nempe communes supra basin pedicellorum lateralium insertæ, iisdemque parùm longiores, reflexæ; 2 aliæ infra singulum florem lateralem oppositæ, calyci utrinque adpressæ, eodemque dimidiò breviores. Ex axillis omnium bractearum nascitur *appendix* (*ramulus mutatus* Brown) planiuscula, setis longis, fasciculatis, inæqualibus, ferrugineis, fimbriato-pinnata, florem longitudine æquans eodemque utrinque laxiusculè adpressa; in fasciculo fructifero appendices hæcce valdè grandefactæ, difformes, munitæ setis numerosissimis, penicillato-fasciculatis, radiatim divaricatis, reflexis, hispidulis, ferrugineo-rufis, basi bracteis persistentibus nec magnitudine nec loco mutatis suffultæ; *interiores* elongatæ in ramulos 4 subflexuosos, per paria parallelos, externè fasciculatim multisetosis, setis superioribus sensim brevioribus minùsque reflexis, summis undique patulis. Calyx 5-partitus; *laciniæ* oblongæ, subobovatæ, basi angustatæ, sursùm membranaceo-marginulatæ, apice retusæ, bidenticulatæ, setâque brevi intermediâ a nervo dorsali excurrente; extùs puberulæ, intùs glabræ. Corolla nulla. Stamina 10, calyce breviore, inclusa, glabra. Filamenta basi connata in urceolum brevem, membranaceum, ovarium subæquantem, circum basin ejus fundo calycis insertum, supernè libera; 5 sterilia, brevia, subligulata, obtusa et nuda; 5 hisce alternantia antherifera, capillacea. Antheræ erectæ, dorso adfixæ, oblongæ, biloculares, utrinque longitudinaliter dehiscentes. Ovarium glabrum, oblongum, acutiusculum, 1-loculare, 1-sporum; *ovulum* cuneatum, ventre insertum apici placentæ liberæ, centralis, obliquè adscendens. Stylus capillaris, calyce parùm longior. Stigmata 3 exserta, glabra, patula, subulata. Pericarpii structura ut suprà in charactere a cel. Brunonio dato.

" The genus *Cometes*, proposed by the younger Burmannus (in *Flora Indica*, *p.* 39), was adopted in *Mantissa prima* by Linnæus, whose generic character agrees in most respects with the short description of Burmannus, from which it was no doubt chiefly formed: as, however, it differs in some points, he probably had seen and slightly examined the original specimen, which Burmannus may have taken with him to Upsal, as it is known he carried there for Linnæus's determination many of his rarer unpublished plants. But Linnæus, in describing the fruit of *Cometes* to be

a '*capsula tricocca*,' must have presumed on the affinity which he erroneously supposed the genus to have to *Dalechampia*.

"Burmannus's specimen of *Cometes surattensis* I have seen in his Herbarium, now in the possession of Baron Delessert. It corresponds tolerably with the figure of *Flora Indica*, which, notwithstanding some differences, was probably made from it.

"When engaged in drawing up the catalogue of Mr. Salt's Abyssinian plants, it occurred to me that the genus which I have in that catalogue named *Saltia*, was at least nearly related to *Cometes;* but I had at that time no means of verifying my conjecture. I afterwards, however, requested M. Decandolle to examine the specimen in M. Delessert's Herbarium, and the result of that examination is given in a note attached to the specimen, written by M. Delessert in 1816, in which it is stated, on M. Decandolle's authority, to be a species of his genus *Desmochæta*, or *Pupalia* of Jussieu.

"In September of the same year I examined the specimen, and left attached to it the following note, which refers to M. Decandolle's opinion, as well as to the Abyssinian genus, which I had published: 'Non Desmochætæ sed Saltiæ species, vid. Catal. Pl. Abyssin. in Itin. D. Salt. Cometis nomen restituendum, R.B.'

"M. Guillemin, in the *Dictionnaire Classique d'Histoire Naturelle*, *tom.* 4, *p.* 356, states that M. De Jussieu, who examined, or at least saw, the specimen in M. Delessert's Herbarium, recognized it to belong to *Amaranthaceæ*, and that M. Decandolle regarded it as a species of *Desmochæta*. M. Guillemin himself, in adopting M. Decandolle's opinion, proposes to apply to that genus the older name *Cometes;* and he adds that in a manuscript note in Burmannus's specimen, I have proposed to do the same thing. But from that note, which I have already given verbatim, it appears that my proposing to restore the name *Cometes* referred to *Saltia*, and not to *Desmochæta*, to which it was evident to me *Cometes* did not belong.

"In the Linnæan Herbarium the specimen named *Cometes*, I believe in the writing of the younger Linnæus, proves to be a plant belonging to *Convolvulaceæ*, and it is probably a species of *Convolvulus* or *Ipomœa*.

"Burmannus (in *Flora Indica*) has given the specific name of *surattensis* to his *Cometes*, and that name Linnæus has adopted in his first *Mantissa*. In the 12th edition of *Systema Naturæ* (vol. ii. p. 127), published in the same year but subsequently to the *Mantissa*, he changed the specific name to *alterniflora*, no doubt derived from the account of the inflorescence given both by Burmannus and himself. It is, however, not a very apt name for a plant, whose flowers are always in threes, though the common peduncles are generally alternate. I have therefore recurred to the original name.

"Sir James Smith in a (pencil) note on the specimen in the Linnæan Herbarium, though aware that the specimen is not really *Cometes*, supposes the specific name last given by Linnæus to have been suggested by it. This might have been the fact had that name been *alternifolia*, which, when he wrote the note, I have no doubt he believed it to be; but the actual name *alterniflora* could not well be suggested by this plant, which has its flowers in a capitulum." *—Brown's MSS.*

For my specimen of this highly interesting plant I am indebted to the kindness of my friend Major Robert Taylor, of the Honourable Company's Bombay Establishment, Political Resident at Bussora, who found it near that town in 1819

Plate XVII. Fig. 1. A leaf with its four stipules. 2. A fascicle of flowers, showing the relative position of the bracts and appendices. 3. A flower with one of the calycine leaflets turned down in order to exhibit the stamens and pistil. 4. Stamens. 5. A grain of pollen. 6. Pistil. 7. Ovarium opened, showing the ovulum and its placenta. 8. A fruit-bearing fascicle, showing the enlarged appendices with the unaltered bracts. 9. An utriculus *in situ*, three of the calycine leaflets being removed. 10. The same opened. 11. 12. Seed. 13. Embryo.

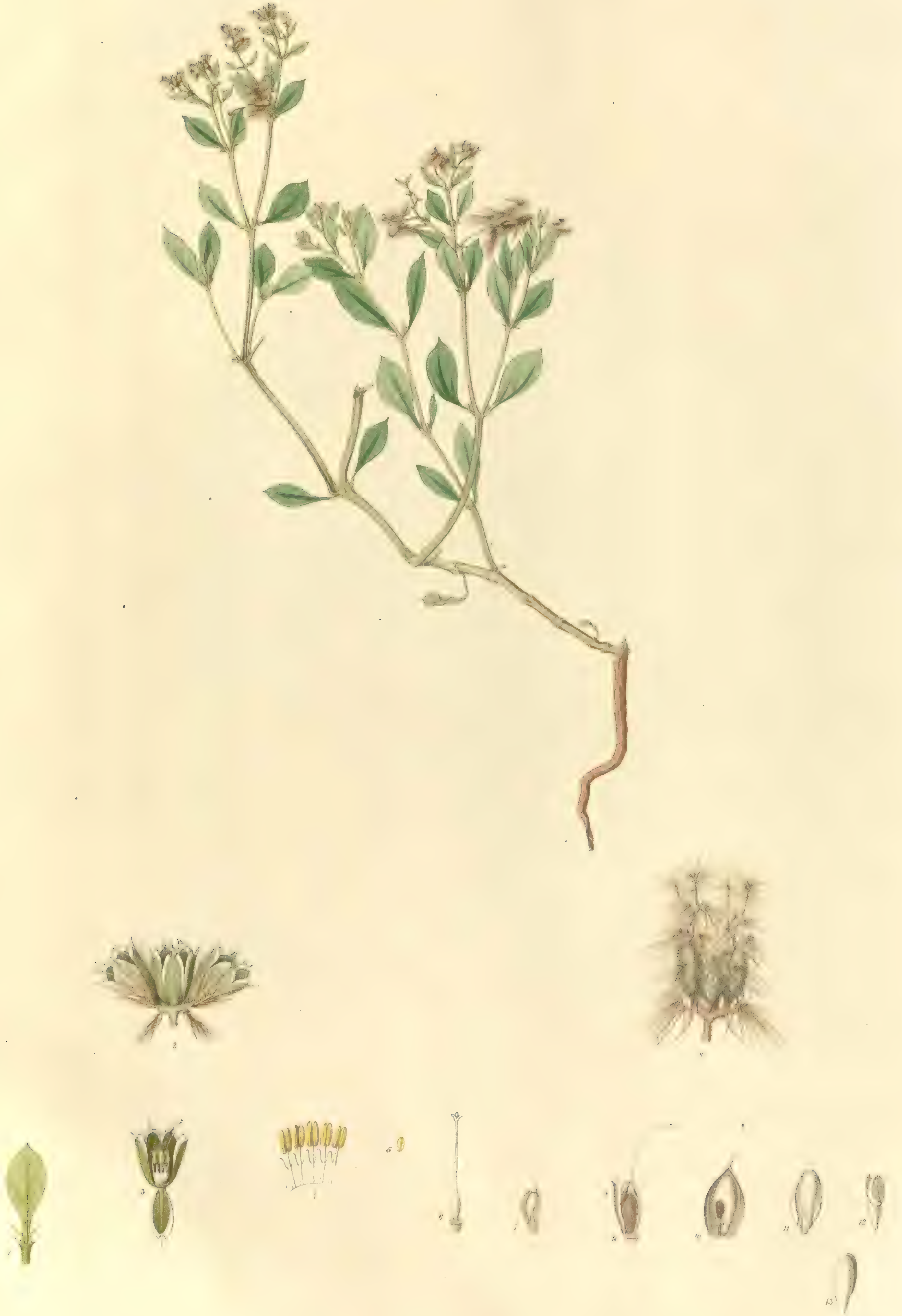
COMETES ABYSSINICA. (Brown MSS.) Tab. 18.

Foliis lineari-lanceolatis, mucronatis, pungentibus; stipulis liberis; ramulis pulvereo-pubescentibus, scabris; fructus involucri ramulis pinnatis, patulis.—*Brown MSS.*

Saltia abyssinica, Brown apud Salt, in Itin. Abyssin. Append. B. p. 376.

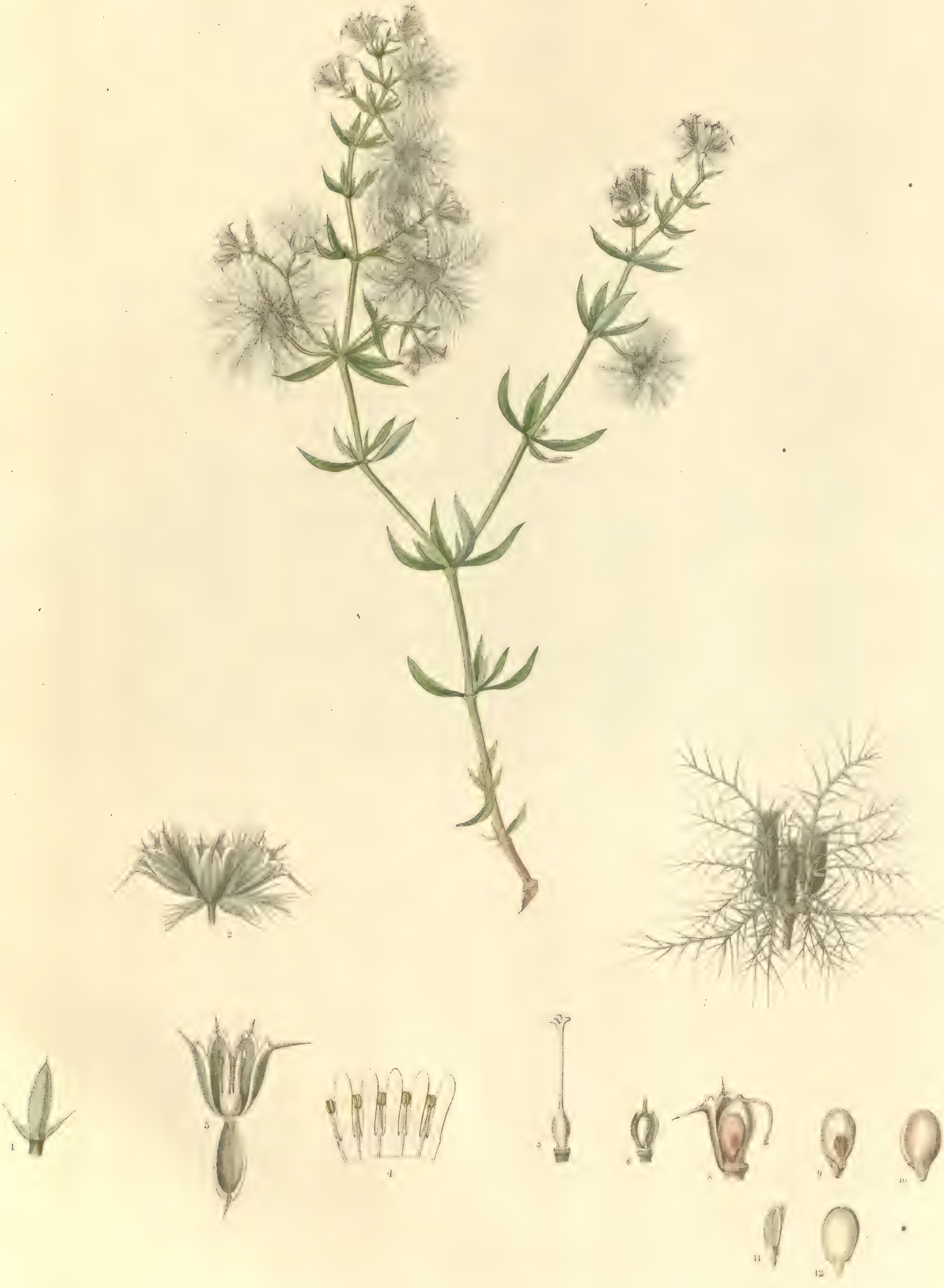
Habitat in Abyssinia, ubi super rupibus ad Dixon legit Dom. Salt. *Herbar. Banksian.*

Annua? adscendens, pedalis. Caulis infernè sublignosus, sursùm attenuatus, filum emporeticum crassus, distanter dichotomus. Rami pauci, graciles, asperuli a pubescentia copiosa, hyalina, ad divisuras parùm tumidi. Folia lineari-lanceolata, mucrone pungenti terminata, sessilia, opposita vel quaternatim subverticillata, patentia, uncialia, suprà glabra, subtùs ad costam marginesque scabrida. Stipulæ 2 axillares, oppositæ, liberæ, lineari-subulatæ, longè cuspidatæ, ciliatæ, evanidæ, ad insertionem, uti axillæ foliorum, munitæ tuberculis


2
1
3
4
5
6
7
8
9
10
11
12
13

M Gauci [illegible]

Cometes surattensis.


1
2
3
4
5
6
7
8
9
10
11
12

Cometes abyssinica

aliquot glandulæformibus, convexis, lævibus, siccatione brunneis. Pedunculi solitarii, axillares, alternæ, densè pubescentes, unguiculares, 3-flori ; *fructiferi* elongati, folia longitudine æquantes, nutantes. Flores oblongi, extùs valdè pubescentes ; laterales brevissimè pedicellati, intermedius sessilis. Bracteæ lineari-acuminatæ, villosulæ, persistentes et immutatæ, omninò ut in priori specie dispositæ. Appendices aristato-pinnatæ, villosulæ, calyces longitudine æquantes, siccitate rufescentes ; in fasciculis fructuum valdè expansæ et elongatæ, ramosæ, pubescentes, glaucescentes, setis longis, patentibus, alternis munitæ. Laciniæ calycis oblongæ, apice bidentatæ, setâ intermediâ longâ, divaricato-patulâ, a nervo dorsali fusco, elevato longè excurrente instructæ, basi angustatæ. Corolla nulla. Filamenta 10 inclusa, basi connata in tubum ovarium ambientem, sursùm libera ; alterna sterilia, linearia, obtusa ; alterna antherifera filiformia, illis breviora perque adelphiam decurrentia. Pistillum et fructus ut in præcedente specie.

The above account was taken from some specimens in the Banksian Herbarium in the British Museum. I must again express my regret at the want of detail in the description, caused by the temporary absence of my friend. I trust, however, to be able to remedy this deficiency in a subsequent part of this volume; in the mean time the dissections, exhibited in the plate, will afford all the information concerning the flower and fruit of this highly remarkable plant, which can be desired.

Plate XVIII. Fig. 1. A leaf with the two free axillary stipules. 2. A fascicle of flowers. 3. Calyx, one of its segments being forcibly depressed in order to show the stamens. 4. Stamens. 5. Pistil. 6. Ovarium opened. 7. A fascicle of fruits surrounded in every direction by a branched and spreading involucre, formed by the enlarged appendices of the bracts. 8. Fruit, with the calyx partly attached to t. 9. 10. 11. Seed. 12. Embryo.

IMPATIENS RETICULATA. Tab. 19.

Lævis, carnosa, basi repens ; foliis oppositis, lineari-oblongis, serratis, acutis, basi retusis, subsessilibus ; pedunculis axillaribus, solitariis, 1-floris, folio brevioribus, fructiferis deflexis ; petalo inferiore reticulato, calcare brevi, incurvo.

Habitat ad loca depressa et humida in Pegu, prope Rangoon. Floret et fructus profert Augusto.

Herba pallida, carnosa, subdiaphana, omninò lævis, erecta. Caulis teres, gracilis, basi repens, supernè rufescens. Rami pauci, alterni vel oppositi, obsoletè quadrangulares. Folia opposita, patentia, brevissimè petiolata, lineari-oblonga, acuta, cuspidato-serrulata, basi retusa, interstitia subæquantia, pollicaria, carnosa, subtùs albicantia, costâ parùm elevatâ. Petiolus planus, vix ultra lineam longus. Pedunculi oppositi, axillares, solitarii, 1-flori, folio parùm breviores, filiformes, lineolâ laterali, cano-villosâ notati, basi *bracteolâ* minutâ, subulatâ ; fructiferi deflexi. Flos roseus, fundo amœnissimè subpellucidè reticulatus, nutans. Sepala 2 lineari-falcata, angustissima, marginibus petali superioris parallela. Petalum superius ovatum, leviter fornicatum, acutum, dorso vix carinatum ; inferius infundibuliforme, reticulato-venosum, ore amplo antice parùm producto, obtuso, fundo desinente in calcar breve, cylindricum, incurvum, obtusum, flavidum ; lateralia ovata, obtusa, conniventia in labium porrectum, basi desinentia in unguem linearem, utrinque munitum dente curvo. Antheræ omnes 2-loculares, polline albicante. Stigma acutum. Capsula ovata, utrinque attenuata, lævis, 5-sulcata.

Plate XIX. Fig. 1. Flower a little enlarged. 2. The same with its parts detached. 3. Pistil. 4. Capsule burst open.

CLEMATIS SUBPELTATA. Tab. 20.

Volubilis et scandens ; foliis simplicibus, lævibus, ovato-cordatis, acutis, integerrimis vel obsoletè crenulatis, basi angustissimè peltatis ; petiolis cirrhatis ; paniculis axillaribus laxis, folia æquantibus ; floribus apetalis, extùs ferrugineo-tomentosis, sepalis ovatis.

Habitat in monte Taong Dong dicta prope Avam ; florens mense Novembris.

Caulis elongatus, ramosus, angulatus, glaber. Rami graciles, leviter angulati, glabri, volubiles et ope petiolorum scandentes. Folia exactè opposita, patentia, remotiuscula, simplicia, acuta, ovato-cordata, lobis basis latis, rotundatis, integerrima vel obsoletè et remotè crenulata, angustissimè peltata, petiolus nempe aliquot linearum a basi folii distantiâ insertus ; coriacea, lævia, 5—7-pollicaria, opaca, suprà bullata, subtùs glauca, 7-nervia, venis remotis, transversis. Petioli cylindrici, folia longitudine æquantes, basi parùm dilatati, sæpissimè torti et cirrhati. Paniculæ axillares, laxiusculæ, foliorum longitudine. Pedunculi teretes glabri ; pedicelli ferrugineo-villosi, pollicares. Flores fragrantes, nudi, apetali, oppositi, nunc fasciculati. Bracteæ foliaceæ, infra pedunculos oppositæ, oblongæ vel lanceolatæ, acutæ, basi contractæ, pollicares, glabræ; aliæ aliquot parvæ, lineares ad basin pedicellorum. Sepala 4, coriacea, patentissima, demùm recurvata, ovata, obtusa, ferè unguicularia, extùs tomento denso, fusco obtecta, intùs purpurea et lævia, marginibus latis æstivatione valvata. Stamina plurima, patentia. Filamenta carnosa, subclavata, apice nuda. Antheræ angustæ, utrinque adnatæ. Ovaria villosa. Stigmata cuneata.

This is a very handsome climber, approaching closely to my *Clematis smilacifolia*, which was published in 1820 in *Asiatic Researches*, vol. xiii. p. 420. It differs in having subpeltate, broad-cordate leaves, which in the other species are simply cordate, without any tendency to being peltate; in the panicles being shorter, and the leaflets of the calyx being ovate, and not, as in the above-mentioned plant, linear-oblong.

Plate XX. Fig. 1. Flower. 2. Stamens. 3. Pistil.

ERANTHEMUM CINNABARINUM. Tab. 21.

Foliis oblongo-ellipticis, attenuatis, longissimè acuminatis, glabriusculis; racemis terminalibus, recurvato-patentibus, paniculatis; bracteis filiformibus; floribus subsessilibus, secundis; laciniis corollæ ovatis.

Habitat prope rupes ad Trogla in Martabania. Floret mense Martii.

Frutex erecta, ramosa, 3—4-pedalis, usque ad altitudinem humanam attingens. Rami oppositi, cylindrici, læves, pennam anserinam crassi, supra petiolorum insertionem leviter tumidi. Folia patentissima, spithamæa, elliptica, in acumen longum, gracile attenuata, integerrima, nunc obsoletè crenulata, basi acuta, utrinque pube minutâ parcâ conspersa, saturatè viridia, suprà nitida, subtus costâ elevatâ nervisque gracillimis obliquis, floralia reliquis sæpiùs multò angustiora et breviora, oblonga, subsessilia. Petioli graciles, sesquipollicares. Panicula terminalis, nuda, constans racemis aliquot oppositis, recurvatis, patentibus, a digito ad spithamam longis. Pedunculi teretes, pubescentes, basi suffulti *bracteis* 2 oppositis, lineari-filiformibus, pubescentibus. Flores magni, speciosi, ruberrimi, erecti, secundi, brevissimè pedicellati, fasciculatim oppositi, suffulti *bracteolis* linearibus brevibus. Calycis laciniæ subulatæ, elongatæ, villosæ. Corollæ tubus gracilis, puberulus, pallidus, sesquipollicaris; *limbus* patens, profundè 5-fidus, subbilabiatus, tubo dimidiò brevior; *laciniæ* ovatæ, obtusæ, inferiores 2 parum angustiores, basi suprà convexæ saturatiùsque rubræ. Antheræ 2 lineares, supra faucem perviam exsertæ, divergentes. Stylus capillaceus, glaber. Stigma parvum, bifidum.

The only spot where I found this charming shrub was at the foot of the hills at Trogla, about a mile from the river Saluen in the province of Martaban. It varies considerably in size. I have seen it as high as six feet. It is of a slender habit, with large deep-green, smooth, spreading leaves. The flowers are large, of a vivid red colour, forming unilateral, spreading, and recurved racemes, which are disposed in a terminal panicle.

Plate XXI. Fig. 1. Calyx and style. 2. Corolla opened.

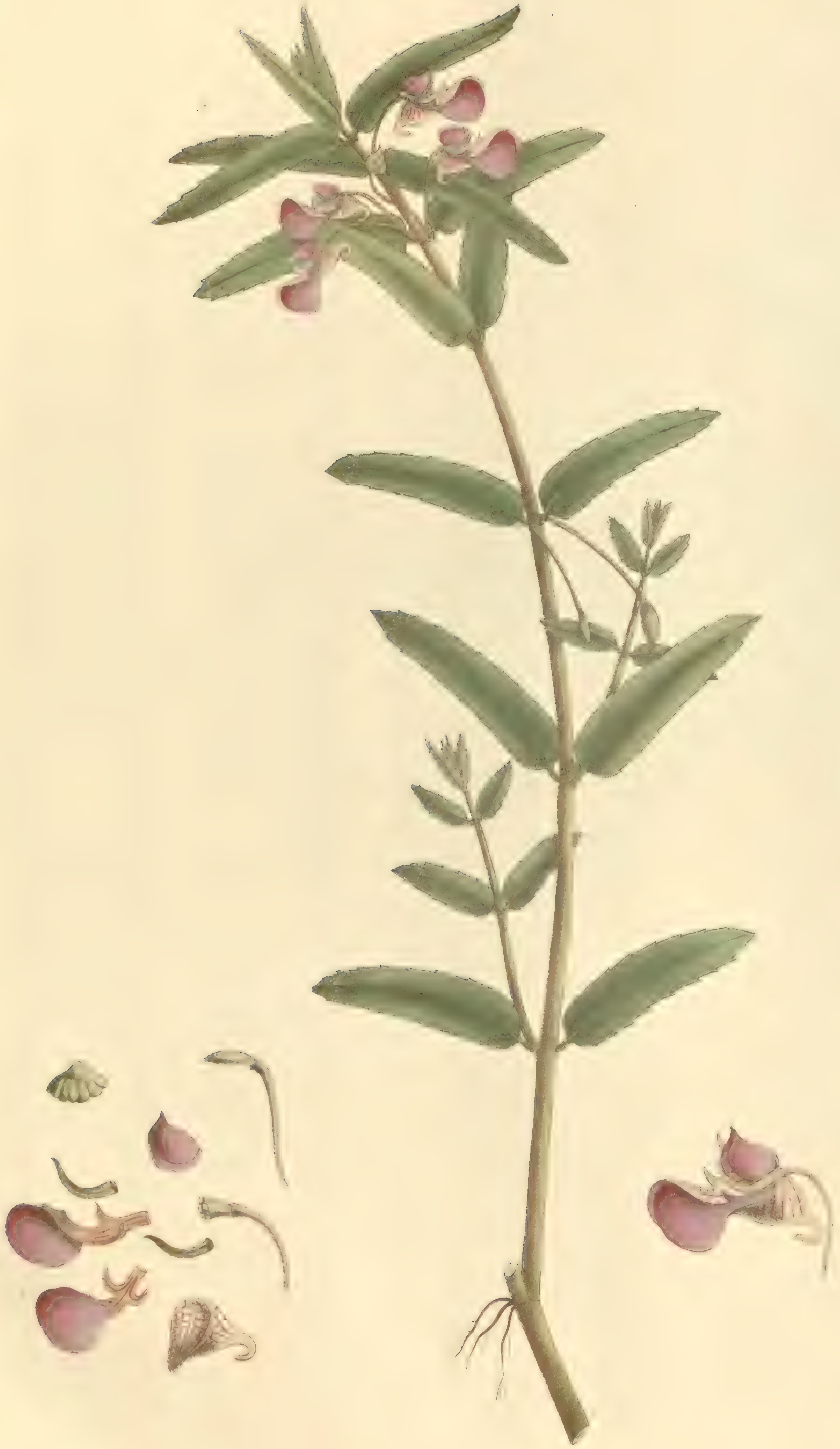
DILLENIA SCABRELLA. Tab. 22.

Foliis cuneato-oblongis, petiolatis, cuspidato-serratis, suprà scabris, subtùs villosis; pedunculis fasciculatis; bracteis sparsis lanceolatis; stylis 7 acutis, stamina longiora æquantibus.

Dillenia scabrella, *Roxb. Hort. Beng*. p. 43.

Habitat in sylvis Bengalæ orientalis. In horto Calcuttensi floret initio anni, fructus maturescunt mense Maii.

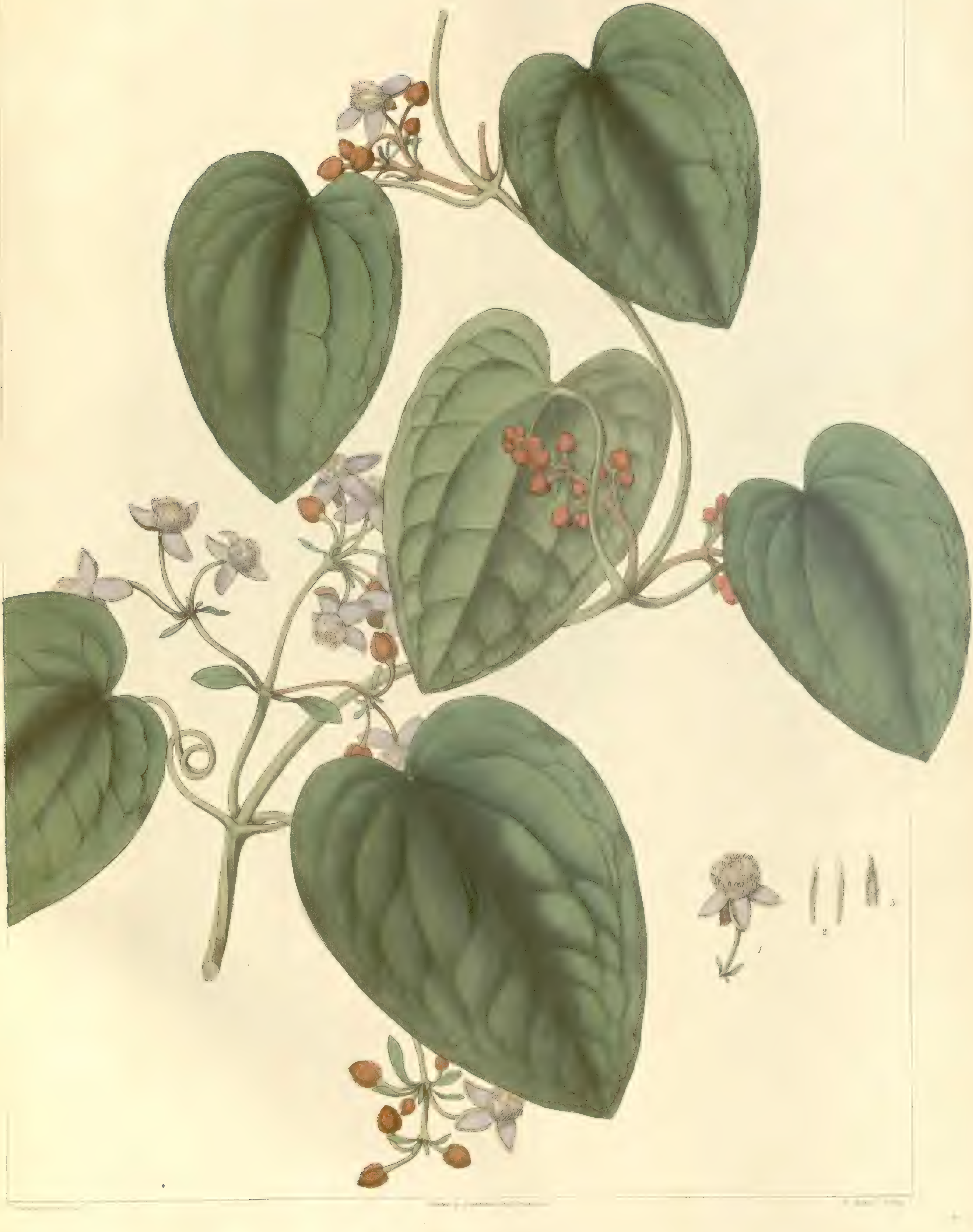
Arbor 30—40-pedalis, ramosissima. Rami cylindrici, grisei, supernè villosi. Folia valdè approximata, patentia, oblongo-cuneata, obtusa vel subacuta, cuspidato-serrulata, spithamæa ad pedalia, utrinquè villosa, suprà scabra, subtùs mollia, parallelè nervosa. Petiolus profundè sulcatus, basi dilatatus, pollicaris, uti costa folii valdè elevata villis longis obsitus. Flores numerosissimi, lutei, suaveolentes, fasciculati ad vestigia foliorum delapsorum. Pedunculi cylindrici, carnosi, purpurascentes, glauci, puberuli, 2-pollicares, tuberculo parvo, squamis gemmaceis circumdato inserti. Bracteæ 2 vel 3 ad medium pedunculi sparsæ, nunc approximatæ et subverticillatæ, oblongæ, acutæ, ciliatæ, diutiùs persistentes. Calyx glaucus, lævis, æstivatione imbricato-globosus; fructus clausus, leviter auctus. Sepala 5 ovata, obtusa, unguicularia, concava. Petala 5 patentissima, demùm super calycem recurvata, obovata, obtusa, deorsùm angustata, leviter undulata, et crenulata, lutea, pollicaria, valdè caduca. Stamina densissimè aggregata, glabra; exteriora brevia, adscendenti-patentia; interiora circiter 15 exterioribus ferè triplò longiora, supraque illis recurva. Filamenta planiuscula. Anthe-



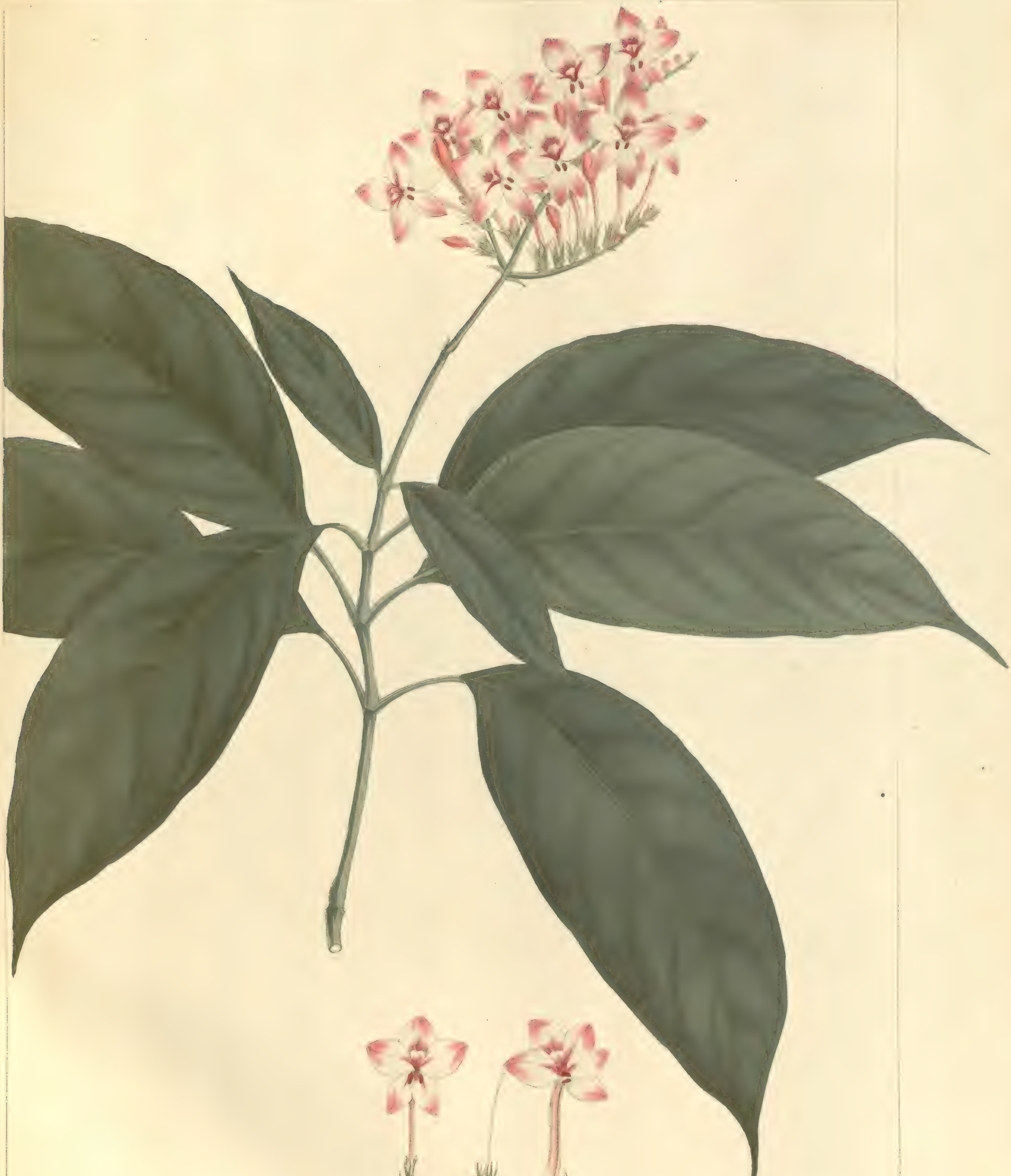
Vishnupersaud del.

[illegible]

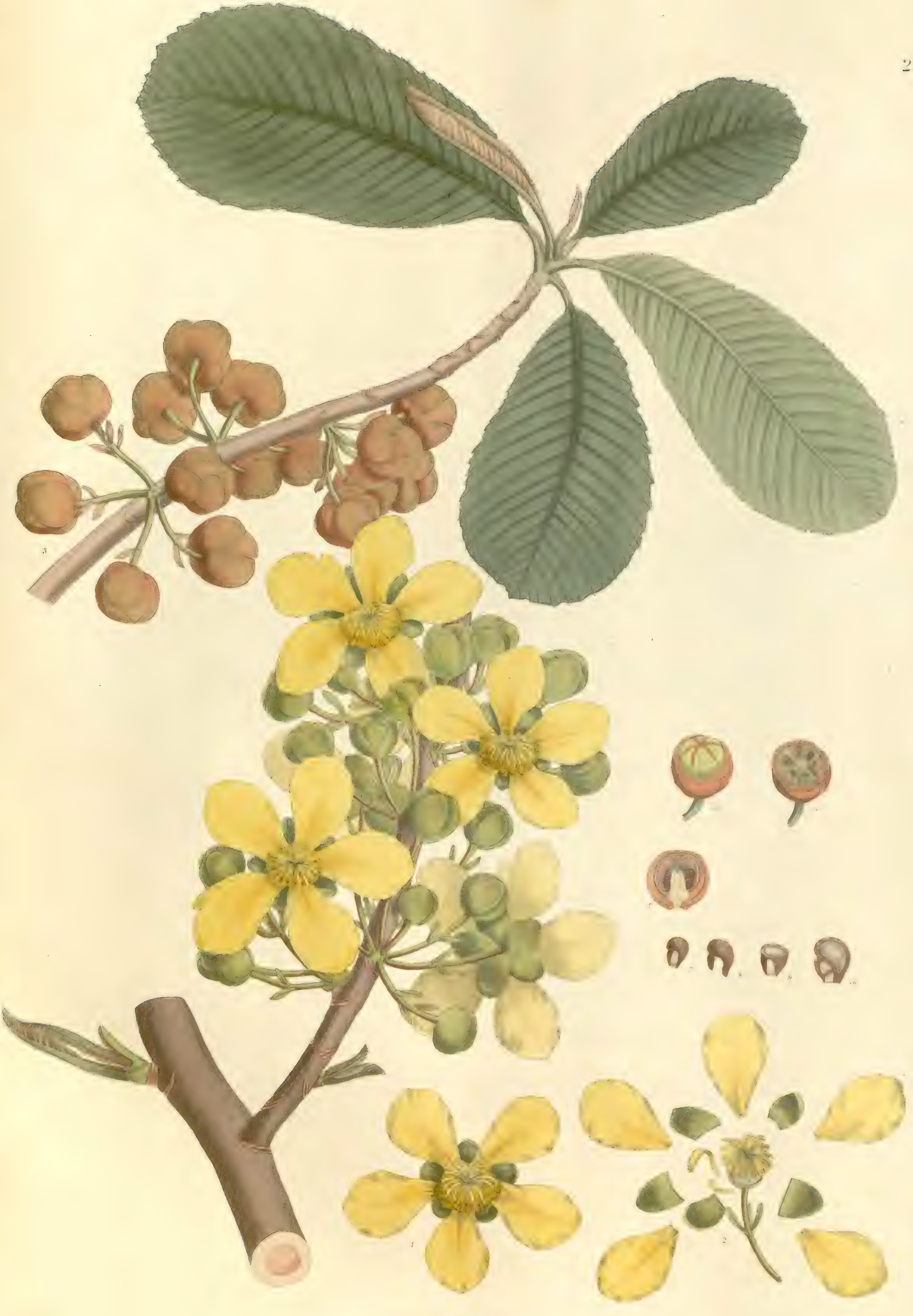
Impatiens reticulata.



Clematis subpeltata.



Exanthemum cinnabarinum



Gorachand delt.

Printed by Engelmann, Graf, Coindet & Co.

Dillenia scabrella.

rarum locula angusta, filamentis utrinque a medio ad apicem adnata. Ovaria 6 vel 7 subcylindrica, erecta, lævia; *ovula* circiter 10 angulo interno loculi inserta. Styli subulati, persistentes, emarcescentes. Stigmata acuta. Carpella 6 vel 7 oblonga, triangularia, dorso convexa, margine interiore acuto, infernè chordæ pistillari adfixo, ex flavo viridescentia, glabra, 1-locularia, monosperma, loculo repleto gelatinâ copiosâ, limpidâ; coacervata in fructum globosum, vertice stylis radiatim patentibus, adpressis notatum, calyce carnoso, aurantiaco reconditum, cerasi magnitudine. Semen in singulo carpello inter plura ovula abortiva solitarium, ovatum, obtusum, parùm compressum, læve, nitidum, tenuissimè reticulatum, basi inæqualiter bicrus; crura brevia, acuta, sinu angusto separata. Testa durissima, ferè ossea, transversè fibrosa. Perispermum carnosum, album, membranâ tenuissimâ obtectum. Embryo minutus ad basin perispermi situs, erectus.

This tree was introduced from Chittagong by the late Mr. John Roxburgh in 1807. It is deciduous, and of very slow growth. At the time of flowering it is entirely destitute of leaves, instead of which it is covered by countless numbers of elegant and fragrant yellow blossoms, which last, however, only a few weeks, and are soon succeeded by a plentiful crop of small, round, orange-coloured fruits. The fleshy leaves of the calyx, which cover these, have a pleasantly acid taste, and are used in curries by the inhabitants of Chittagong, (of which district of Bengal the tree is a native,) in the same manner as those of *Dillenia speciosa* (*Chalta* of the Bengalese). The tree is in full foliage during the rainy season.

It differs from *Dillenia aurea* Smith, in having smaller, simply serrated, villous, and soft leaves, and small flowers, disposed in round lateral fascicles on the naked branches. From the figure of that species in *Exotic Botany*, vol. ii. t. 92 and 93, it appears that the inner series of the stamens is shorter than the outer; in our species the reverse is the case. From *Dillenia pentagyna*, Roxb. (*Colbertia coromandeliana*, Decand.), it differs in having larger flowers, bracted peduncles, and 6 or 7 pistils with acute stigmas. Its leaves are not one half the size of those of the last-mentioned species.

The structure of the seed is somewhat peculiar. The base of it is divided into two unequal, tooth-formed lobes, separated from each other by a narrow sinus, into which the fleshy axis of the fruit insinuates itself. One of these lobes, namely the inferior, is larger than the other, and forms in fact the base of the seed, being hollow within for the reception of part of the perisperm and the embryo. The other, or superior lobe, is smaller and solid, being formed by a simple elongation of the testa. It sometimes happens, that the interstice, or sinus, is subdivided by a transversal partition, which gives the seed the appearance of being two-celled, one of the cells being embryoniferous, the other vacant.

Plate XXII. Fig. 1. Flower. 2. The same dissected, with a stamen of both the inner and outer series detached. 3. A fruit-bearing branch. 4. Fruit, the calycine leaves being cut off. 5. The same divided in the middle. 6. The same cut lengthways. 7. 8. Seed. 9. The same cut across in the middle. 10. The same divided longitudinally, showing the position of the Embryo.

DILLENIA ORNATA. Tab. 23.

Foliis obovatis, remotè crenulato-denticulatis, petiolatis, suprà glabris, subtùs pubescentibus; floribus ramulorum terminalibus, solitariis.

Habitat in Martabania in sylvis riparum fluminum, Attran et Saluen, florens Martio.

Arbor 50 pedes alta, trunco recto, ramis copiosis. Rami juniores cylindrici, cinerei, glabri; tenelli sericei. Folia approximata, sparsa, pedalia, obovata, obtusa, remotè crenata, crenaturis subulato-denticulatis, deorsùm attenuata, basi acutâ per petiolum pollicarem, semi-cylindricum subdecurrentia, suprà glaberrima, nitida, subtùs pube molli, incanâ obtecta, costâ magnâ, nervisque plurimis suboppositis, parallelis, approximatis, elevatis; *novella* tomento sericeo, deciduo obsita. Flores magni, speciosi, flavi, odorati, patentissimi, diametrum 3—4-pollicarem ferè emetientes, ramulorum ultimorum, nudorum terminales et solitarii, suffulti *pedunculo* cylindrico, crasso, pollicari, pilosulo, basi *bracteis* aliquot parvis, ovatis, valdè deciduis munito. Sepala carnosa, oblonga, obtusa, concava, pollicaria, patentia, demùm reflexa, glauca, dorso villis longis, sericeis, mox deciduis. Petala patentissima, obovata, venulosa, ferè 2-pollicaria, basi angustata. Stamina valdè numerosa; interiora reliquis longiora superque iis recurvata. Stigmata 9, acuta, stellatim patentia.

This noble tree is rather common in the forests of the principal rivers in Martaban, where I know from experience that it has not unfrequently been mistaken for the *Teak* (also a native of that province), to which, indeed, it has some resemblance when in full foliage. The flowers are large and fragrant, and produced in vast abundance.

Plate XXIII. A flower dissected.

GASTROCHILUS.

Corolla duplici serie 6-fida. Laciniæ interiores cum basi filamenti in tubum coalitæ; inferior sive labellum gibboso-ventricosum. Anthera nuda, loculis obtusis, connectivo retuso longioribus.

Systema Linnæanum, *Monandria Monogynia.*

Ordo naturalis, *Scitamineæ*, media inter *Alpiniam* et *Kæmpferiam.*

Habitus: Herbæ acaules vel caulescentes, radice repente vel fibroso-ramosâ, tuberibus subsessilibus, fasciculatis; spicâ radicali vel terminali imbricatâ; floribus elegantissimis, nutantibus, tubo longissimo, lobello ventricoso (unde omnen).

GASTROCHILUS PULCHERRIMA. Tab. 24.

Caulescens, foliis lanceolatis subsessilibus; spicâ terminali secundâ, tubo corollæ incluso.

Habitat ad Rangoon in sylvis; floret mense Augusti.

Radix repens, carnosa, extùs fuscescens, intùs pallida, absque ullo ferè sapore vel odore, divisa in articulos subrotundos, pollicares, sursùm fibras aliquot breves, carnosas, indivisas, deorsùm radiculas plures, fibrillosas emittentes. Tubera plura, cuneiformia, pollicaria, sursùm attenuata, subsessilia. Caules aliquot seriati, ex singulis nempe articulis radicis solitarii, erecti, cylindrici, glabri, pennam cygneam ferè crassi, pedales ad 2-pedales, induti *vaginis* striatis, infimis arctè adpressis, aphyllis, reliquis apice utrinque lobulo obtuso, oblongo; supremis laxiusculis, basin spicæ involventibus (unde caulis subclavatus evadit). Folia versus superiorem caulis partem subapproximata, alterna, patentia, subsessilia, 5—7-pollicaria, lanceolata, in acumen gracillimum attenuata, basi acuta, planiuscula, subcoriacea, glaberrima, suprà nitida, subtùs glauca, costâ elevatâ. Petiolus vix semiunguicularis, canaliculatus. Spica terminalis, sessilis, oblonga, secunda, attenuato-acuta, 5-pollicaris, basi vaginis summis occulta, antice florifera, posticè plana et imbricata bracteis erectis, alternis, adpressis, subdistantibus, planis, lanceolatis, acutis, pollicaribus, viridibus. Rachis carnosa, crassa, planiuscula, dorsi medio a bractearum basibus denudata. Bracteæ interiores 3, oblongo-lanceolatæ, acutæ, tenuissimæ; harum exterior cum bractea exteriore rachi inserta, interiores pubescentes, infra ovarium adnatæ. Flores pauci, secundi, dilutè flavicantes, limbo rufo-striati, subdiaphani, glaberrimi, subsessiles. Calyx laxiusculus, oblongus, hinc fissus, ore 3-dentatus, tubo triplò brevior. Tubus corollæ gracilis, teres, apice incurvus, pollicaris, bracteis parùm brevior. Limbus campanulatus, subtùs gibbosus, fauce levissimè angustatus, nutans, ferè pendulus, 6-fidus, pollicaris. Laciniæ conniventes, duplici serie dispositæ. Exteriores oblongæ, obtusæ, lineas 8 longæ, leviter concavæ, limbo supernè adpressæ. Interiores difformes; *superiores* nempe, vel *laterales*, cuneato-obovatæ, obtusæ, flavicantes, venulosæ, unguiculares, basi contractâ insertæ dorso filamenti, intra lacinias exteriores decumbentes; *inferior* sive *labellum* campanulato-infundibuliforme, subtus gibboso-ventricosum, limbo parùm porrecto, rufo-striatulo, retuso, intùs nudum, basi angustatâ filamenti basi accretum. Filamentum breve, limbo inclusum, basi cum limbo interiore concretum in tubulum brevissimum, apice liberum. Anthera oblonga, nuda, loculis connectivo longioribus. Ovarium oblongum, glabrum brevissimè pedicellatum. Stylus filiformis, basi corpusculis teretibus, flavicantibus lateraliter auctus. Stigma glabrum, convexum, supra antheram vix elevatum.

The habit of this plant resembles that of an *Alpinia*, with which genus it also agrees in having a naked anther. But it differs essentially in its 6-parted corolla, having the lobes disposed in two alternating rows, as in *Kæmpferia.* The plant is therefore intermediate between those two genera. Its flowers are very beautiful, and of a most delicate, subdiaphanous texture, pale yellow, with the exterior part of the lip rose-coloured.

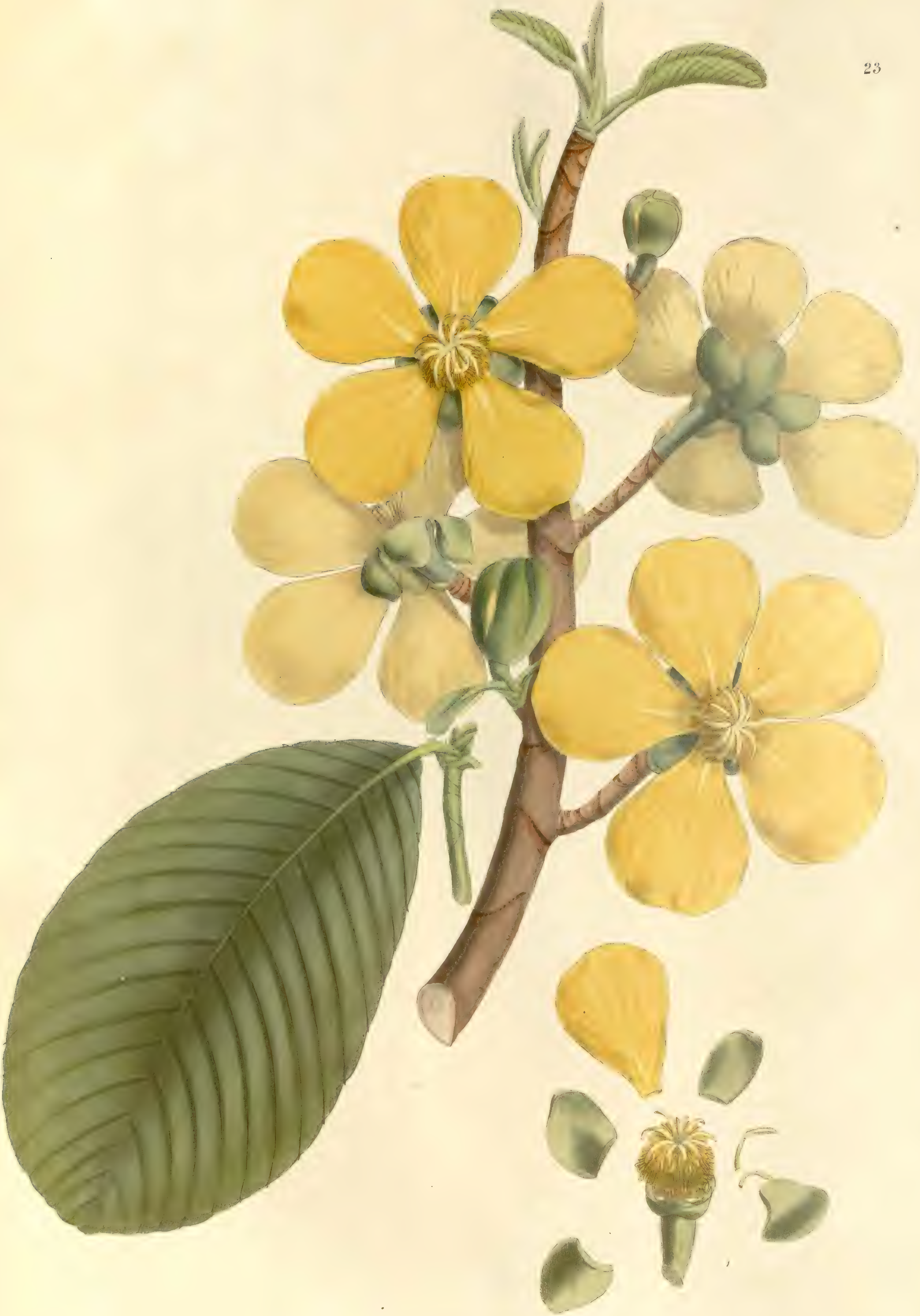
Plate XXIV. Spike seen from the back. 2. A flower, with the interior bract. 3. Two exterior bracts. 4. Flower, with the exterior lobes of the border detached. 5. The same, with the border dissected and the calyx detached.

GASTROCHILUS LONGIFLORA. Tab. 25.

Acaulis, foliis oblongo-cordatis, longè petiolatis; spicis radicalibus; tubo corollæ longissimo, exserto.

Habitat in sylvis prope Rangoon; etiam observavi in Martabania. Floret Augusto.

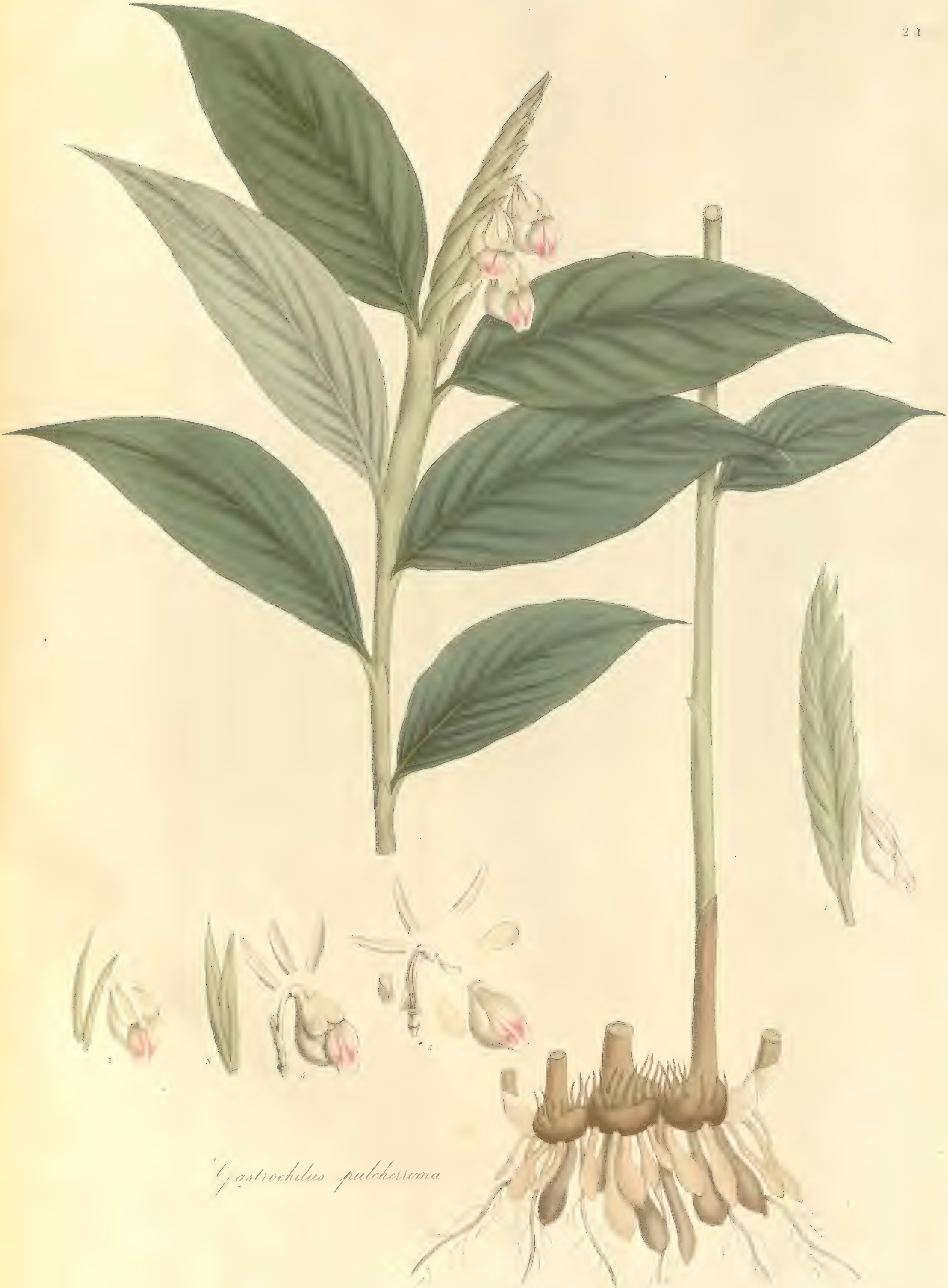
Radix constans fibris longis, ramulosis, gracilibus, tuberibusque aliquot fasciculatis, cylindricis, pennam cygneam crassis, pollicaribus vel 2-pollicaribus, pallidis, extùs rufescentibus. Folia aliquot radicalia, erecta, subbifaria, oblonga, acuminata, basi cordata, lobis subdistantibus, rotundatis, interdum inæqualibus, membranacea, glaberrima, suprà saturatè viridia, nitidula, leviter obliquè plicata, subtùs purpurea, obliquè lineata, costâ crassâ, viridescente; 6—8-pollicaria. Petioli limbum folii longitudine ferè æquantes, crassiusculi, profundè canaliculati, medio utrinque denticulo acuto notati, deorsum valdè ampliati, membranaceo-marginati, basique bifariè imbricantes. Spicæ circiter 6, radicales, sessiles, et basi terrâ reconditæ, glabræ, erectæ, cylindraceo-oblongæ, attenuatæ, 3-pollicares. Bracteæ distantes,



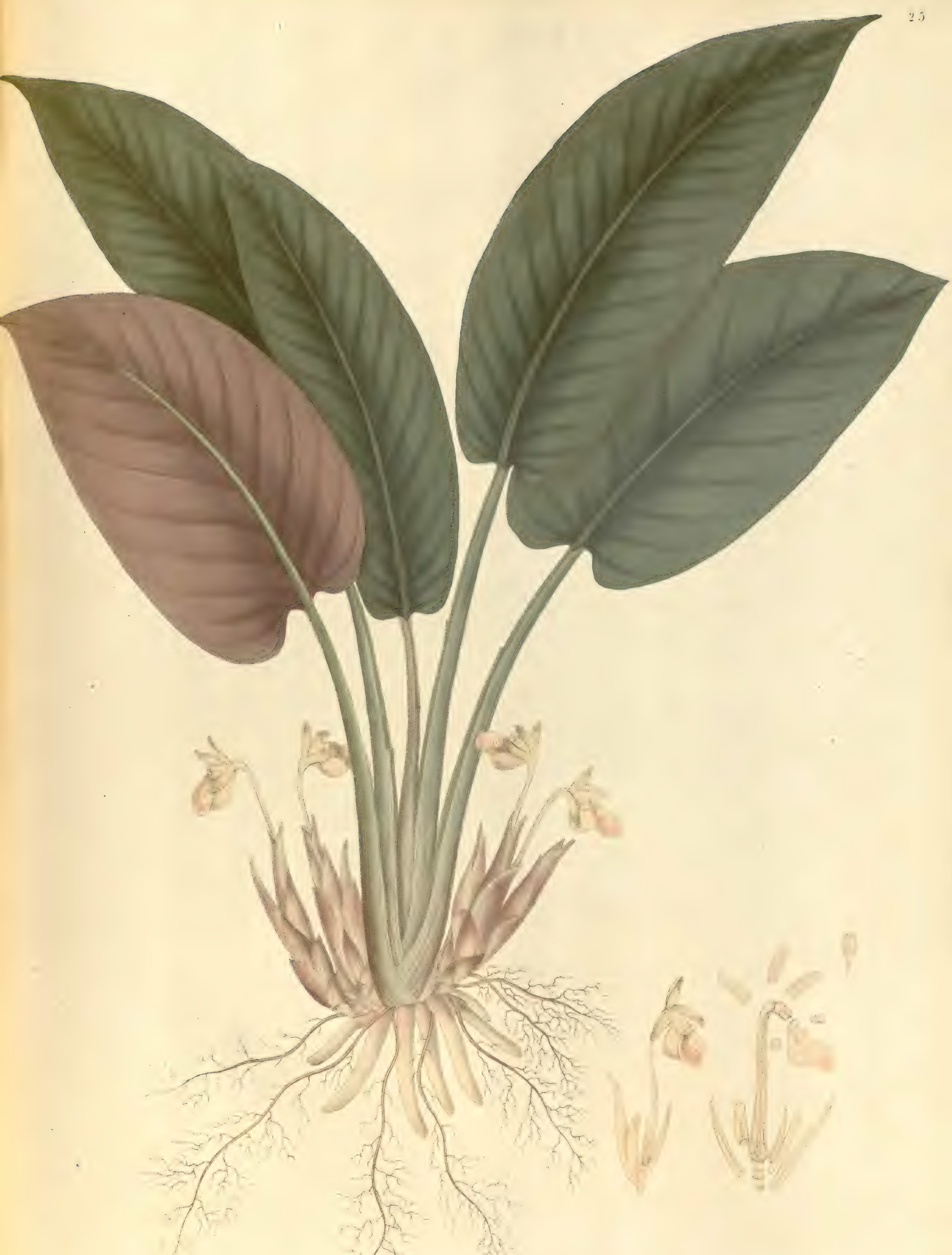
Printed by Engelmann Graf Coindet & Co

M. Gauci lithog

Dillenia ornata



Gastrochilus pulcherrima



Gastrochilus longiflora

imbricantes, oblongæ, attenuatæ, acutæ, purpurascentes, striatæ, 1—2-floræ, infimæ vacuæ, supremæ apice subliberæ; *interiores* 2 vel 3, lineares, canaliculatæ, tenuissimè membranaceæ. Flores pauci, e sinu bractearum exteriorum solitarii vel gemini, brevè pedicellati, illis præcedentis speciei minores, flavi, fauce rufiduli. Calyx oblongus, hinc fissus, apice 3-dentatus. Tubus longissimus, filiformis, ferè 3-pollicaris, pallidè flavus, dimidiâ superiore parte supra bracteis spicæ elevatus et liber, apice incurvus. Limbus nutans, campanulatus, tubo plùs dimidiò brevior. Laciniæ *exteriores* erecto-patentes, oblongæ, obtusæ, concavæ, unguiculares. Interiores conniventes difformes; *superiores* vel *laterales* valdè parvæ, oblongæ, obtusæ, basi labelli supernè insertæ, filamento incumbentes, apice recurvatæ, lineas 3 longæ; *inferior* sive *labellum* descendens, subtùs gibboso-ventricosum, limbo obliquè porrectiusculo, obtuso, basi cum filamento in tubulum connatum, supernè lacinias laterales adfigentem. Filamentum breve, crassum, apice nudum. Anthera majuscula, loculis distantibus, connectivo lato, retuso longioribus. Stigma parùm exsertum, ciliatum, clavatum.

This second species of *Gastrochilus* has the habit of a *Kæmpferia*. Its flowers are smaller than those of *G. pulcherrima*, from which it differs abundantly in being stemless, and having long petioled, cordate leaves, radical spikes, and flowers with very long tubes. The lip embraces the filament at its base, and forms with it a short tube, on the back of which are inserted the inner lateral lobes of the limb.

Mr. Don's *Gastrochilus*, Prodr. flor. nepal. p. 32. (*Epidendrum calceolare* Hamilt.) of which I have seen an authentic specimen in the late Sir J. E. Smith's herbarium, seems to be either a species of *Sarcanthus* Lindl., or of *Saccolabium* Blume.

Plate XXV. Fig. 1. Flower. 2. The same dissected. 3. A detached Anther.

URENA SPECIOSA. Tab. 26.

Foliis trinerviis, denticulatis, subtùs cano-tomentosis, nervis mediis basi glandulosis; inferioribus subrotundis, acutè subtrilobis, longè petiolatis, mediis oblongo-cordatis, acuminatis, summis lanceolatis, subsessilibus; corollâ maximâ infundibuliformi, calycem et involucellum quinquefidum multoties superante; carpellis lævibus, reticulatis.

Inveni ad inferiorem partem montis Taong Dong dictæ prope Avam, super rupibus nudis crescentem, florentem et fructigeram mense Decembre.

Planta fruticosa, erecta, 2—4-pedalis, pube canâ, stellatâ copiosè obtecta. Caulis teres, basi usque ad digitum minimum ferè crassus, supernè *ramos* emittens paucos, alternos, simplices, breves. Folia sparsa, patentia, subapproximata, denticulata, 3—5-nervia, suprà pubescentia, subtùs cano-tomentosa, reticulato-venosa, nervo medio, quandoque lateralium uno alterove ad basin glandulâ oblongâ, rimosâ, submucosâ munitis; inferiora subrotunda, 3—5-pollicaria, extrorsùm acutiusculè 3-loba, longè petiolata; medii caulis oblongo- vel ovato-cordata, attenuata, acuta, integra, rariùs lobata; summa nec non ramea lanceolata, obtusa, pollicaria, brevissimè petiolata. Petioli graciles, teretes, pubescentes, apice cylindraceo-tumidi, inferiores folia æquantes, medii iisdem pluries breviores, summi brevissimi. Stipulæ parvæ, oppositæ, lanceolatæ, deciduæ. Flores magni, speciosi, rosei, inodori, ad apicem caulis ramorumque approximati, racemosi, *paniculam* terminalem simplicem, rotundatam formantes, inferiores axillares foliorum summorum parvorum, reliqui suffulti *bracteâ* oblongâ, acutâ, pedicello tereti, bilineari parùm longiore. Calyx ferè semiunguicularis, oblongus, profundè 5-dentatus, pallidus, membranaceus, obsoletè 5-angularis et 5-nervius, angulis villosulis, intùs glaber, dentibus acutissimis, ciliatis; cinctus *involucello* coriaceo, paullò breviore, acutè 5-dentato, adpresso, nervis pluribus parallelis lineato, incano-subtomentoso, intùs lævi, dentibus istos calycinos æquantibus, iisdemque alternantibus, ciliatis. Corolla infundibuliformis, 2-pollicaris, rosea, venosa, extùs pubescens; *tubus* brevissimus calycem æquans, sensim ampliatus in *limbum* patentem, ferè sesquipollicarem, 5-lobum, lobis rotundatis, crenulatis. Filamenta connata in tubum cylindraceum, rectum, corollâ parùm breviorem, fundo ejus supra tubum insertum, dimidiâ superiore partè gerentem *antheras* oblongas, sparsas, parvas, subsessiles, numerosas. Ovarium rubrotundum, læve; *stylus* gracilis, teres, tubo stamineo parùm longior, apice 10-partitus; *stigmata* capitata, pubescentia, purpurea. Carpella lævia, reticulato-vasculosa; *semina* grandiuscula, solitaria, grisea.

I found this very charming plant on exposed, rocky and naked situations at the foot of the mountain called Taong Dong near Ava, both in flower and fruit, in December 1826. It varies considerably in stature and in the form of its leaves. The latter are long-petioled, round and lobed at the base of the stem, oblong or ovate-oblong at its middle; while the uppermost are small, subsessile and lanceolate. The corolla is exceedingly beautiful, of a pink colour, and elegantly veined, nearly two inches long, and by far the largest of the genus, which has in general small and inconspicuous flowers. All the green parts of the plant are covered with more or less stellate, soft pubescence; the lower surface of the leaves is hoary and whitish.

Plate XXVI. Fig. 1. Involucellum opened, showing the pistil. 2. Calyx detached and opened. 3. Corolla opened.

KÆMPFERIA ELEGANS. Tab. 27.

Caulescens, basi repens, radice simplici, fibrosâ; foliis oblongis, dimidiato-cordatis, petiolatis; spicâ terminali basi involutâ spathâ nervosâ; laciniis corollæ interioribus obovatis; cristâ filamenti subrotundâ, indivisâ, revolutâ.

Frequens in sylvis Pegu et Martabaniæ, vigens et florens tempore pluvioso.

Planta pedalis, subcæspitosa. Radix constans fibris simplicibus, carnosis, fuscescentibus, teretibus. Tubera nulla. Caulis erectus, digitum minimum ferè crassus, leviter complanatus, glaber, constans *vaginis* petiolorum paucis, subbifariis, pallidis, striatis, apice obtusè bidentatâ solutis; e basi emittens caules aliquot annotinos, inferiore parte repentes. Folia oblongo-ovata, acuta, leviter undulata, subplicata, basi obliquè et subdimidiato-cordata, erectiuscula, suprà saturatè viridia, subtùs glauca, costâ crassâ, pilosulâ, obliquè et tenuiter nervosa, 6-pollicaria. Petioli crassiusculi, canaliculati, pubescentes, 1—4-pollicares, basi vaginantes. Spica terminalis, solitaria, erecta, 4-pollicaris, gracilis, pauciflora, cylindrica, vix medium folii summi attingens, suffulta *pedunculo* gracili, filiformi, vaginis caulis involuto, supernè libero, pollicesque duos longo. Bractea exterior spathacea, foliacea, viridis, flores infernè amplectens, convoluta in cylindrum pennam anserinam ferè crassum, e basi parùm attenuatum, $2\frac{1}{2}$-pollicarem, lineis elevatis, parallelis, copiosis, striisque inter has transversis, brevibus, fuscis ornatum; apice expansa in laminam patulam, lanceolatam, acutam. Flores 4 vel 5, rhachi brevi, occultæ inserti, alterni, singuli suffulti *bracteâ* tenui, membranaceâ, lanceolatâ, acutâ, spathâ breviore. Calyx cylindricus, sursùm parùm ampliatus, tubo corollæ dimidiò brevior, glaber, ad medium obliquè fissus, hinc attenuato-ligulatus, apice 3-denticulatus. Corollæ *tubus* gracilis, filiformis, pallidus, 3-pollicaris, basi cum calyce spathâ occultus, supernè exsertus et liber. Limbus duplici serie 3-partitus; *exterioris laciniæ* pallidæ, albicantes, membranaceæ, lanceolatæ, acuminatæ, ferè pollicares, patentes, supremâ subreflexâ; *interior* plano-patentissimus, suprà purpureus, subtus albicans: *laciniæ superiores* obovatæ, lævissimè retusæ, limbo exteriore reflexo parùm breviores; *inferior* sive *labellum* illis duplò majus, profundè 2-partitum in lobos semiovato-rhomboideos, obtusos, marginibus interioribus rectis et parallelis, laciniis limbi exterioris vix breviores. Filamentum membranaceum, brevissimum, fauci infra laciniis superioribus limbi interioris insertum, purpureum, antice concavum et gerens *antheras* 2 oblongas, 2-loculares, apice latâ coronatum *cristâ* magnâ, indivisâ, rotundatâ, revolutâ. Ovarium pubescens, ovatum. Stylus filiformis. Stigma clavato-complanatum, ciliatum, carnosum, filamenti basi involutum, apice vix exsertum.

This very beautiful plant is a native of the kingdom of Pegu and of Martaban. I found it growing abundantly in the thickets about Rangoon and near Amherst and Moalmyne. Like all other East Indian scitamineous plants, it is in full vigour during the rains, dying down to the root soon after their cessation. It is totally different from the species noticed by Dr. Roxburgh in his *Flora Indica*, and belongs to the section, which I have long ago indicated in that work (vol. i. p. 20) as differing from the other in the caulescent habit, absence of tubers, and entire crest. The two other species of that section, *Kæmpferia secunda* and *linearis*, I have repeatedly received in a growing state from the Pundua mountains, bordering on Sillet; but I have never been able to keep them alive in the Botanic Garden at Calcutta. All three ought perhaps to be removed from *Kæmpferia*, and formed into a distinct genus, for which I would propose the name of *Monolophus*, in allusion to the entire crest of the anther.

The flowers of our species expand successively, and are of a beautiful purple colour on the upper surface, and white below. The outer bract or spatha is elegantly nerved, and marked with numerous short, transverse, brown stripes. No part of the plant possesses any remarkable aromatic smell or taste.

Plate XXVII. Fig. 1. Spike with the spatha opened. 2. Calyx and corolla; tube of the latter opened. 3. Stamen and pistil, the corolla being cut away from the place where the filament is decurrent on the inside of its tube.

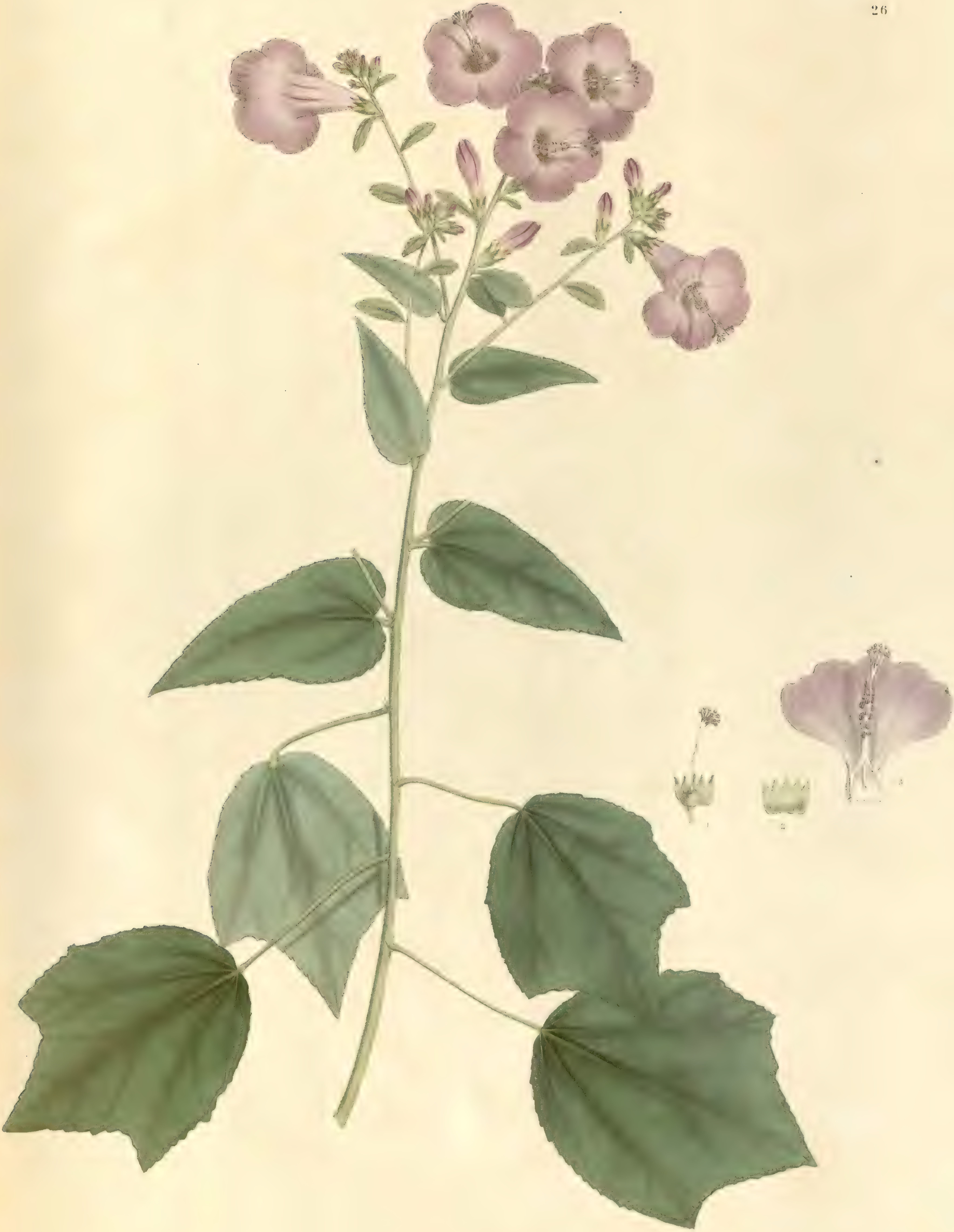
JUSTICIA GUTTATA. Tab. 28.

Caule subsimplici, erecto; foliis oblongis, utrinque attenuato-acutis, subcrenulatis, brevè petiolatis, lævibus; racemo terminali; floribus fasciculatis; dentibus calycinis bracteisque linearibus; labio corollæ superiore recto, bilobo, lateribus reflexo; laciniis labii inferioris ovatis, obtusis, patentibus; antheris nudis, carnosis, erectis, demùm divaricatis, loculis anticis, parallelis, gracilibus.

Incolit montes Pundua, Bengalæ orientali confines, florens initio anni. In horto botanico Calcuttæ floret mensibus Decembre et Januario.

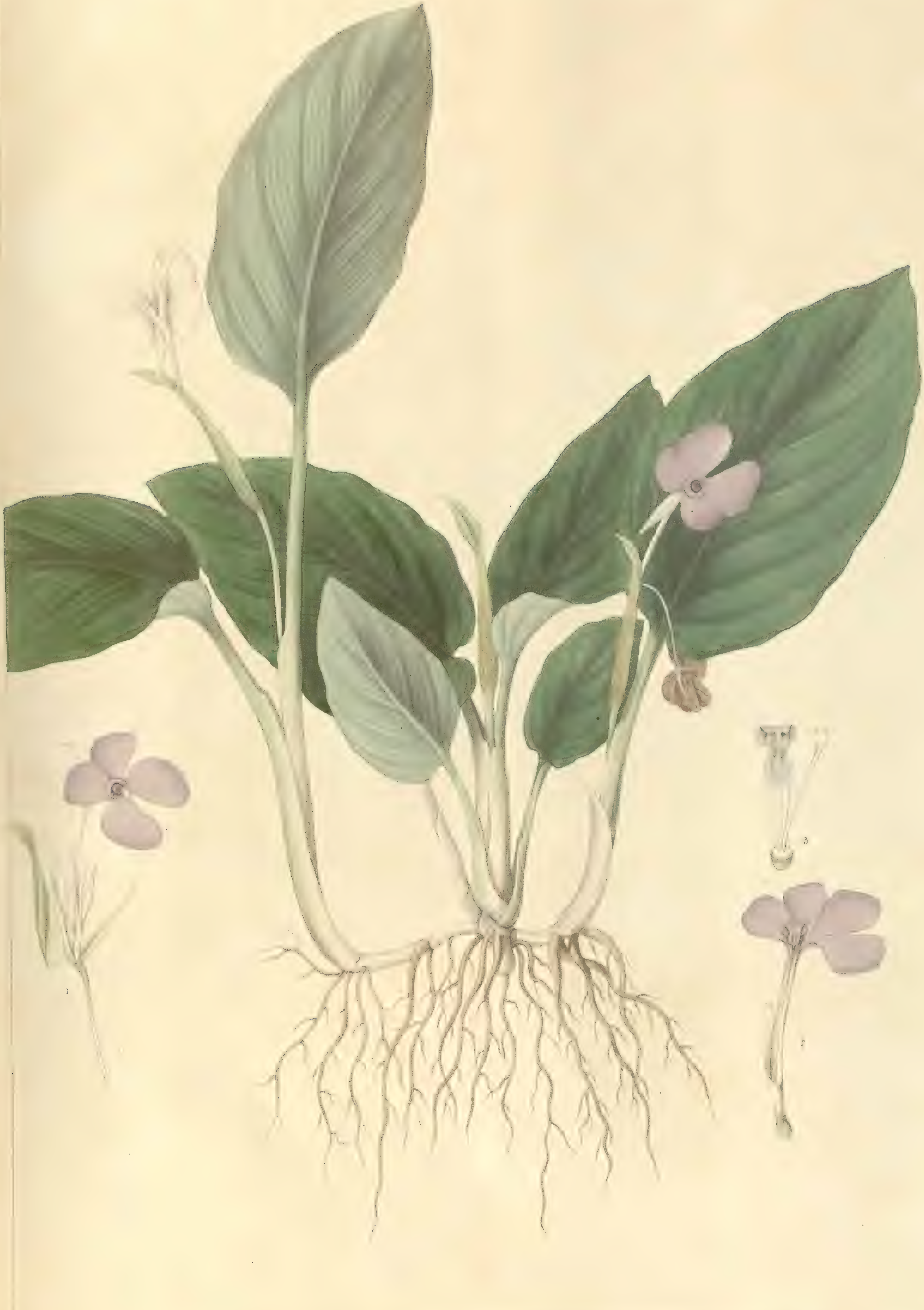
Nomen Khasianum: Beeja.

Planta glabra, fruticosa, erecta, pedalis, 2-pedalis. Radix gracilis, ramoso-fibrosa. Caulis obsoletissimè 4-angularis, pennam scriptoriam crassus, supra foliorum insertionem ventricoso-intumescens, supernè fuscescens, sæpissimè simplex, nunc *ramulo* uno alterove brevi, gracili. Folia patentia, oblonga, utrinque attenuata, brevè acuminata, obsoletè et distanter crenulata, basi acuta, interstitiis bis terve



[illegible] del.

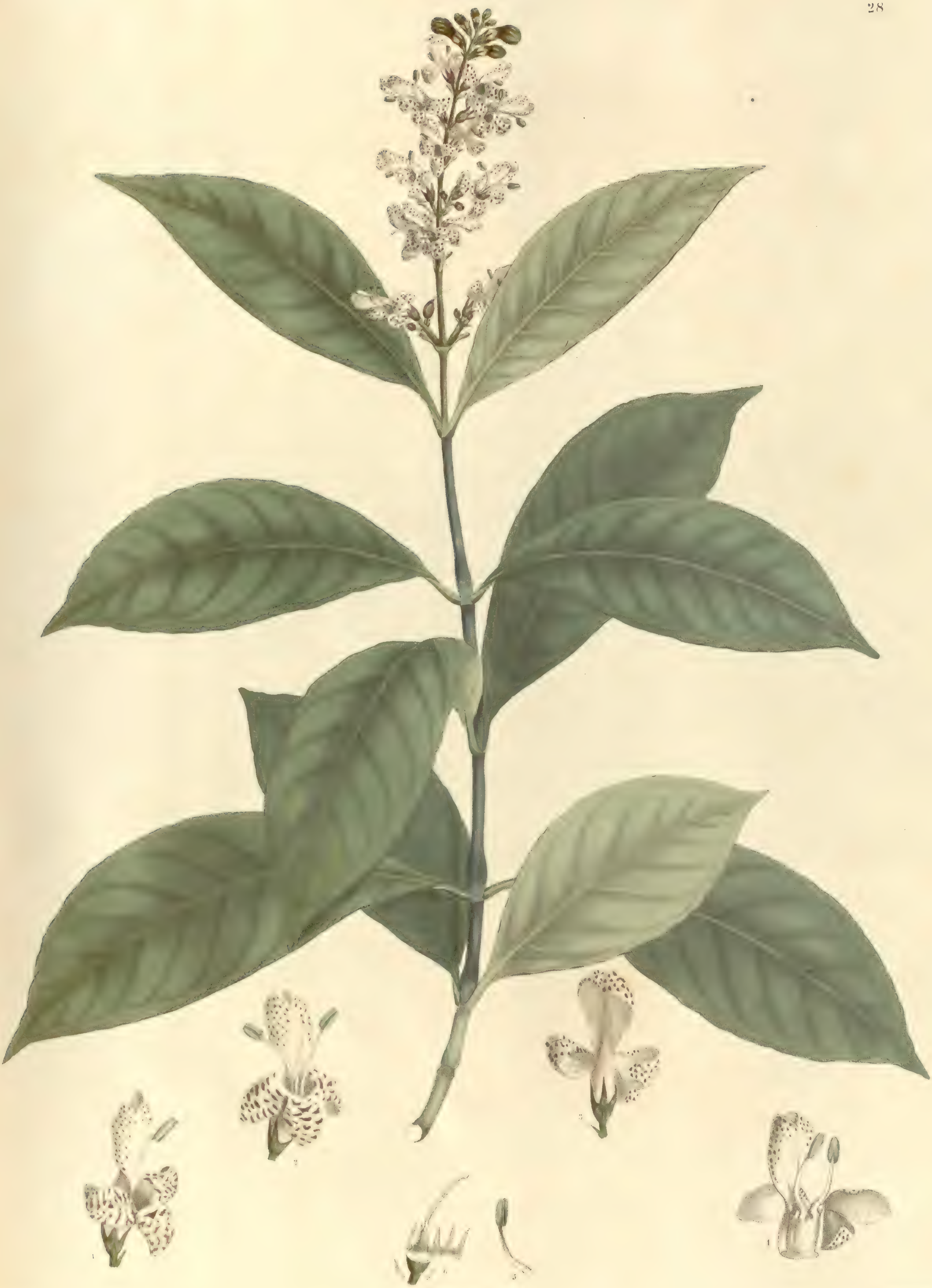
Urena speciosa



Vishnupersaud del.

Printed by Engelmann Graf Coindet & Co.

Kaempferia elegans



[illegible] del. [illegible], Graf, Lithog. [illegible] lithog

Justicia guttata

longiora 5—6-pollicaria, coriacea, lævia, opaca, utrinque minutim punctulata, suprà atro-viridia, parùm bullata, subtùs pallida, costâ nervisque copiosis, prominentibus. Petiolus brevis, semipollicaris vel parùm ultrà, suprà sulcatus. Racemus terminalis, nudus, palmaris, oblongus, constans *floribus* magnis ex viridi albidis, purpureo-guttatis, dispositis in fasciculos trifloros, oppositos, remotiusculos, pedicellatos, superioribus oppositis solitariis. Pedunculus *communis* teres, glaber; *partiales pedicelli*que fuscescentes. Bracteæ lineari-lanceolatæ, patentes, oppositæ, ciliatæ, pedicellos æquantes. Calyx ovatus, subcarnosus, purpurascens, puberulus; *dentes* lanceolati, acuminati, ciliati. Corollæ *tubus* semiunguicularis, leviter ventricosus, calyce paullò longior, minutim pubescenti-glandulosus. Limbus patens, tubo parùm longior, bilabiatus; *labium superius* erectum, obovatum, apice obtusè bilobum, lobis ovatis lateribusque recurvatis, posticè concavum albidum, anticè maculis purpureis ornatum; *labium inferius* patens, tripartitum, lobis ovatis, obtusis. Filamenta carnosa, basi crassiuscula, curva et pubescentia, erecta, demùm divaricata, exserta, labio corollæ superiore parùm breviora. Antheræ oblongæ, carnosæ, viridescentes, dorso convexæ, nudæ, læves, parallelæ, demùm lateraliter deflexæ, anticè *loculis* angustis, parallelis, æqualibus, valdè approximatis. Præterea stamina 2 sterilia, subulata, fauci, inter labia inserta. Stylus pubescens, staminibus parùm brevior; *stigma* obtusum.

Plate XXVIII. Fig. 1. Flower, immediately after expansion. 2. The same, in a more advanced state, after the stamens have become divaricated. 3. The same, seen from behind. 4. Corolla opened. 5. Stamen. 6. Calyx opened, showing the pistil.

DENDROBIUM AMPLUM. Tab. 29.

Rhizomate repente, squamoso, pseudobulbos ovatos, squamosos, diphyllos gerente; foliis ovato-oblongis, emarginatis, petiolatis; floribus solitariis, longè pedunculatis, axillaribus, e bracteis duabus oblongis, petaloideis provenientibus; sepalis ovatis, acuminatis; petalis angustioribus; labello sessili, trilobo, mediò lamellato, lobis lateralibus abbreviatis rotundatis, intermedio ovato, crenulato, acuto. *Lindl. MSS.*

Dendrobium amplum, Lindl. in Wall. catal. herb. ind. num. 2001.

Inveni in monte Sheopore Napaliæ, arborum rupiumque parasiticum, florens sub pluviis.

Orchidea magna et speciosa, omnibus partibus glabra. Rhizoma longissimum, teres, gracile, sublignosum, fuscum, læve, indutum *squamis* aridis, adpressis, alternis, imbricantibus, ovatis, acutis, lineatis, unguicularibus, magnitudine versus pseudo-bulbos increscentibus, tardiùs deciduis; demùm nudum, per plures pedes super arboribus saxisve, ope *fibrarum radicalium* teretium, e basi pseudobulborum provenientium, subfasciculatarum, serpens. Pseudobulbi 3 ad 5 pollices ab invicem distantes, alterni, ovati, firmi et sublignosi, læves, nitidi, pollicem duosve longi, obtusi, vertice 2-phylli, obtusè 3- vel 4-angulares, *squamis* aliquot magnis distichè imbricantibus, ovatis, acutis, pollicaribus deorsùm sensim decrescentibus, et in squamas istas rhizomatis abientibus; ætate nudi et basi tantùm a rudimentis squamarum fibrosi. Folia 2, erecto-patula, ovato-oblonga, utrinque acuta, apice 2-denticulata, coriacea, lucida, lævia, 4—6-pollicaria, suprà atro-viridia, nervoso-lineata, subtùs pallida, desinentia in *petiolum* pollicarem, sulcatum, rigidiusculum, basi leviter dilatatum. Flores magni, speciosi, solitarii, longè pedunculati, ex apice pseudobulbi inter petiolos provenientes, patentissimi, diametrum ferè 4-pollicarem emetientes, vix apicem foliorum attingentes, e viridi-fuscescentes, purpureo-punctati, lobello fusco, inodori. Pedunculus cylindricus, ovario parùm brevior cumque illo tripollicaris, ferè occultus *bracteis* duabus oppositis, laxiusculè erectis, oblongis, planis, acutis, deorsùm parùm angustioribus, parallelis, foliis directione contrariis, membranaceis, sesquipollicaribus; aliis parvis præterea interioribus ad basin pedunculi, et terminali ad apicem ejus solitariâ, lanceolatâ, unguiculari, basin ovarii vaginante. Sepala patentissima, æqualia, e basi ovata, lata, elongato-attenuata, acuminata, ferè 2-pollicaria, integerrima, viridescentia, suprà punctis lineolisque fuscis notata, lateribus revolutis; *postica* subfalcata, infra columnam connata et plana. Petala sepalis angustiora, sed longitudine eadem æquantia, linearia, attenuato-acuminata. Labellum sessile, sepalis dimidiò brevius, basis subinfundibuliformis marginibus erectis, convexo-subfalcatis, obtusis, purpureo-guttatis, fundo 3-cristato, cristis parallelis, nudis, intermedio breviore; laminâ lato-ovatâ, patente, acutâ, undulato-crispatulâ, fuscâ, nudâ, reticulatâ, flavido-marginatâ. Columna semicylindrica, labello dimidiò brevior, anticè plana, basi valdè dilatatâ parùm producta. Anthera terminalis, ovata. Massæ pollinis 4, cereaceæ, æquales, per pares collaterales. Ovarium subcylindricum, 2-pollicare.

"This is one of the transitions from *Dendrobium* to *Bolbophyllum*, agreeing in habit with some species of the latter genus, and in fructification more with the former, but not exactly with either." *Lindl. MSS.*

For the specific character and observation given above I am indebted to my inestimable friend Professor Lindley, who has undertaken, and in a great measure accomplished, the elaboration of the families of *Orchideæ*, *Rosaceæ*, and *Amentaceæ*, in my possession; and from whom I have, besides, derived constant and important aid in the prosecution of this publication, in the arrangement of the herbaria placed by the Honourable East India Company under my charge, and in the distribution of their duplicates. Many years, indeed, before I left India, have I benefited by Mr. Lindley's generosity and kindness to a degree, which has placed me under the most lasting obligations. I have long been desirous of an opportunity, and I seize the present one with great satisfaction, of expressing publicly the sincere respect and gratitude which I entertain towards that eminent and highly accomplished botanist.

Our plant attains a very large size, and is certainly one of the most beautiful of the genus to which it belongs. It is rare in Nepal, and I have only found it towards the summit of one of the highest mountains, which surround the great valley of that country. It grows parasitically on trees and rocks in moist and shady situations, and produces its large flowers towards the latter end of the rainy season.

Plate XXIX. Fig. 1. Flower dissected; the labellum expanded, with a portion of the column attached.

PODOCARPUS LATIFOLIA. Tab. 30.

Monoica; foliis ovato-lanceolatis, valdè acuminatis, oppositis; amentis masculis fasciculatis, axillaribus, pedunculo communi suffultis; nuce globosâ, receptaculo angusto, bracteis sparsis obsito.

Habitat in montibus Pundua, ubi detexit Francis De Silva. Floret mense Martio; fructus maturi fine anni.

Nomen Khasianum: Soplong.

Arbor mediocris, sempervirens. Rami cylindrici, crassiusculi, virides, uti omnes partes læves; novelli cum foliis glauci, pallidi, basi *squamis gemmaceis* sparsis, lanceolatis muniti. Folia opposita, bifariè patentia, interstitiis triplò longiora, lato-lanceolata, nunc ovato-lanceolata, attenuato-acuminatissima, plana, integerrima, basi acuta, coriacea et firma, lætè viridia, lucida, pollices 5 longa, subtùs pallida, costâ parùm elevatâ. Petioli brevissimi, lineam vel duas longi, suprà plano-sulcati. Flores monoici. Amenta mascula ovato-oblonga, obtusa, patentia, sessilia, pollicaria, basi bracteis aliquot lanceolatis, acutis circumdata, 5 ad 9 conferta in fasciculos aliquot medii rami axillares, oppositos, solitarios, erecto-patulos, subglobosos, suffultos *pedunculo communi* gracili, tereti, supernè parùm incrassato, pollicari vel sesquipollicari, foliis pluries breviore. Antheræ valdè copiosæ et densæ, undique sparsæ, patentes, *filamentis* capillaceis, brevissimis insidentes, lineam longæ, lato-ovatæ, utrinque rimâ longitudinali dehiscentes, loculis supernè parùm divergentibus, connectivo dilatato, ensiformi-cuspidato. Flores fœminei infra amenta mascula axillares, solitarii, oppositi, pauci, suffulti *pedunculo* cylindrico, pollicari, rudimentis bracteolarum denticulato. Ovarium obliquè ovatum, acutiusculum, insidens *receptaculo* oblongo, cylindrico, unguem longo, bracteolis sparsis, persistentibus, lanceolatis, patentibus munito, sub nuce paullò ampliato et succulento, purpureo. Nux globosa, basi acutiuscula, diametri semipollicaris.

This species is very distinct from *Podocarpus macrophylla* in the size, figure, and insertion of its leaves, and the fascicled aments. Both are found on the same lofty range of mountains bordering on the eastern parts of Bengal, not far from the district of Sillet, (see *Tentamen floræ napalensis illustratæ*, 1. p. 56.) My plant-collector, who sent me both living plants and dried specimens, informs me, that it grows to the size of a middling tree; but he could not ascertain whether it is put to any particular use by the mountaineers. It is probable that the juicy receptacles are eaten like those of the kindred species.

I find that I have mistaken this tree for the *Dammara alba* of Rumphius (*Pinus Dammara*) in my account of the Nipal Sassafras and Camphor Tree, inserted in the Transactions of the Medical and Physical Society of Calcutta, vol. 1. p. 46. (note at the bottom). I had not then seen its flower and fruit, and was deceived by the striking resemblance, which exists between the leaves and branches of the two trees.

In the Botanic Garden at Calcutta the young trees of this species thrive luxuriantly. They were introduced in 1824.

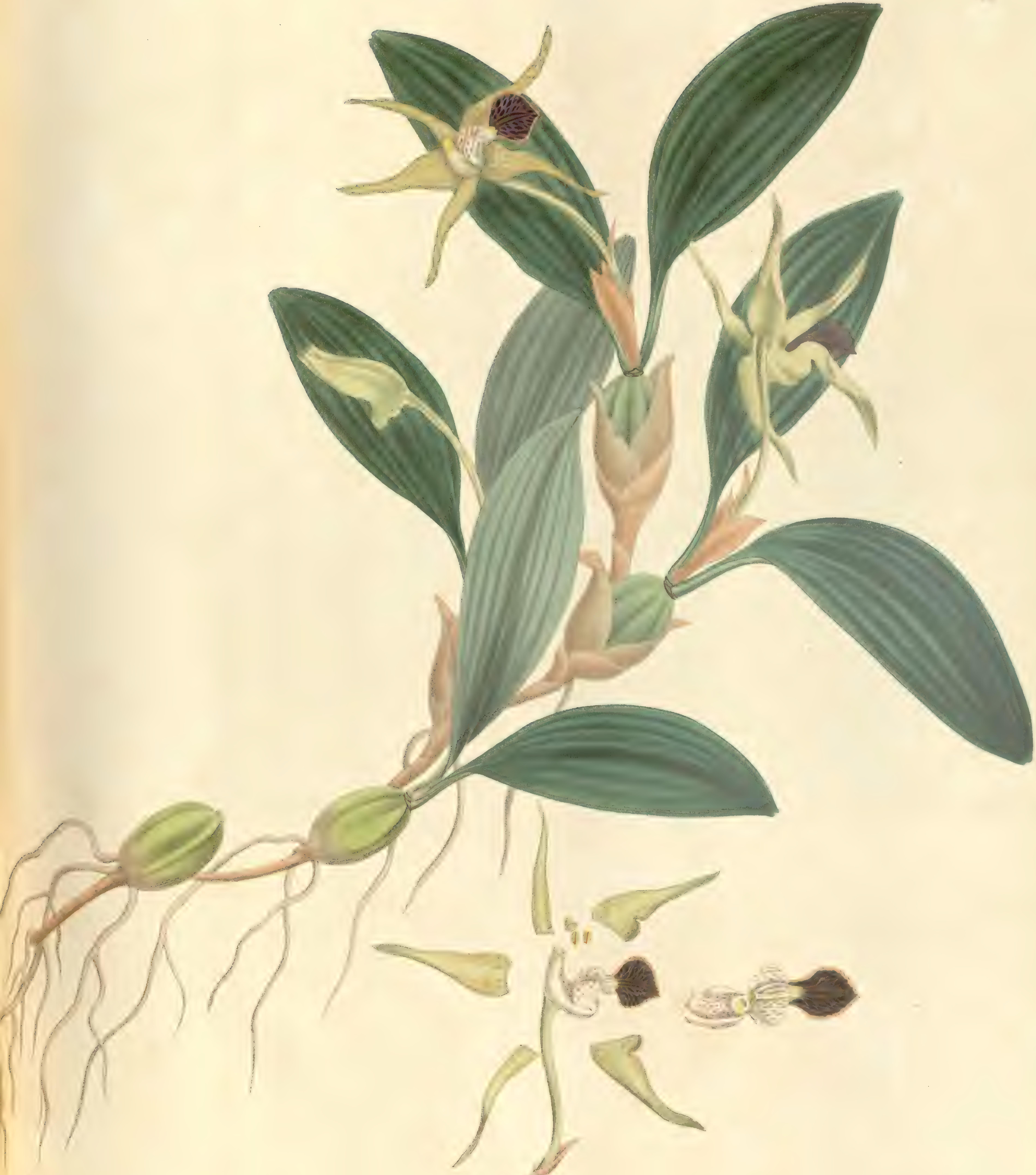
Plate XXX. Fig. 1. Tender branch and leaves. 2. Male amentum. 3, 4. Stamen viewed from two sides. 5, 6. Ovarium and Receptacle. 7. Fruit on its fleshy receptacle.

RUELLIA ALATA. Tab. 31.

Herbacea erecta; caule ramisque quadrialatis, alis undulatis; foliis ovatis, acuminatis, serrulatis, basi acutis, perque petiolum decurrentibus, pubescentibus; floribus axillaribus, calycis laciniis linearibus, demùm valdè elongatis capsulâque lineari longioribus.

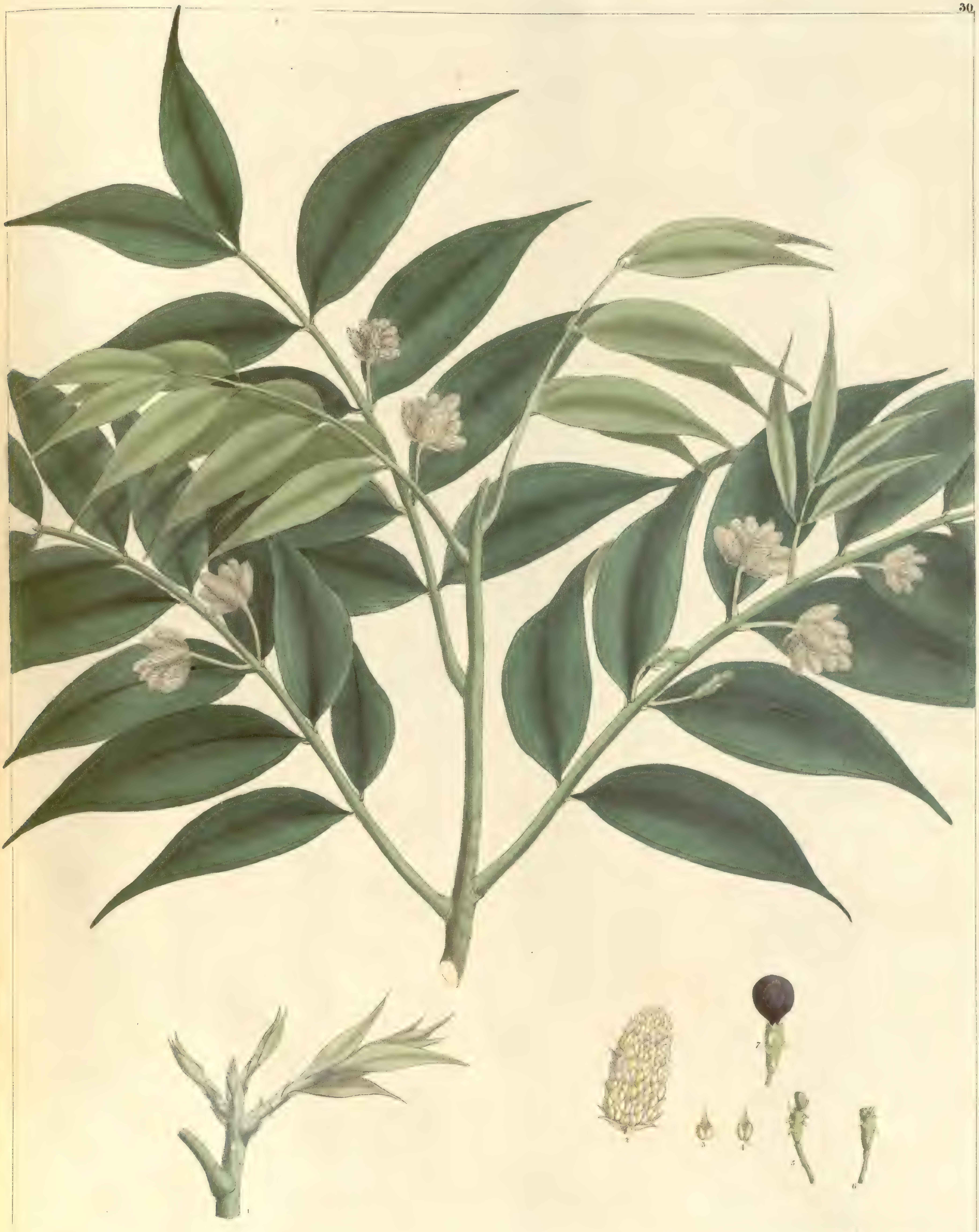
Legi in monte Sheopore Napaliæ versus cacumen, ad elevationem pedum 10,000, florentem Julio et fructigeram Octobre. Etiam habui e regionibus magis adhuc elevatis versus Gossain Than Himalayæ.

Planta annua, erecta, paniculatim ramosa, 2—3-pedalis. Caulis teres, glaber, basi pennam anserinam crassus, sursùm attenuatus, *rami*que graciles ventricoso-articulati, *alis* 4, undulatis, subcrispatis, viridibus, ciliatis, utrinque versus articulos attenuatis et delitescentibus, mediò lineas 2 vel 3 latis, aliquando unâ duabusve harum geminatis, ad apicem ramorum sensim angustioribus. Ramuli acutè tetragoni, subflexuosi, in pare longitudine semper inæquales. Folia patentia, remotiuscula, interstitiis breviora, 3—5-pollicaria, inæqualia, ovata, attenuato-acuminata, serrulata, serraturis uncinato-incurvis, basi integerrimâ rotundato-acutâ per petiolum decurrentia, secus nervos valdè obliquos, extrorsum ferè longitudinales, utrinque prominentes pilis brevibus raris conspersa, cæterùm glabra, suprà saturatè viridia, subtùs albicantia, venosa, costâ elevatâ. Folia *floralia* lanceolata, sessilia. Petioli 2-pollicares, ob foliorum basin decurrentem marginati, in pare alter altero multùm brevior, et ad apicem caulis et ramorum omninò deficiens. Flores magni, speciosi, purpurei, extùs albicantes, ad axillas exteriores oppositi, solitarii, subsessiles, 2-pollicares. Calyx profundissimè 5-partitus, membranaceus, semiuncialis, suffultus bracteis 2, lineari-cuneiformibus, oppositis; *laciniæ* lineares, acutæ, pilis brevibus, capitellatis ciliatæ, post



M. Gauci lithog.

Dendrobium amplum



[illegible]

Printed by Engelmann, Graf, Coindet & Co

M. Gauci [illegible]

Podocarpus latifolia

[illegible] alata

[illegible] del.

[illegible] Graf [illegible]

M. Gauci lithog

florationem valdè elongatæ. Corolla infundibuliformis, glabra, calyce triplò longior, *tubo* versus faucem valdè ampliato supràque gibboso; *limbus* patens, 5-lobus, lobis rotundatis, subæqualibus, semiunguicularibus. Filamenta pilosula. Antheræ per pares parallelæ et contiguæ, infra faucem. Ovarium parvum, oblongum, subtetragonum, insidens *disco* oblongo, carnoso, flavo. Stylus filiformis, pubescens. Stigma clavatum, acutum, super antheras parùm elevatum. Capsula lineari-subtetragona, lævis, laciniis calycis valdè elongatis, pollicaribus ferè dimidio brevior, dehiscens in *valvulas* 2 graciles, recurvatas, dorso sulcatas, ventre carinatas et retinaculis 2 magnis munitas. Semina 4 plana, suborbiculata.

This in my opinion is one of the most charming species of the whole genus. It grows to be a large ramous plant, which at first sight may be easily recognised on account of the four waved wings of the stem and principal branches, which are very broad in the middle, between the joints, but gradually decrease and almost entirely disappear towards the joints themselves. The leaves are very unequally petioled, one of the petioles in each pair being always considerably shorter than the other, so that towards the upper ends of the branches one of the leaves becomes sessile, while the other is petioled. The flowers are large and exquisitely beautiful, of a purple colour, pale or nearly white without.

Plate XXXI. Fig. 1. Calyx opened. 2. Corolla opened.

KNOXIA PLANTAGINEA. Tab. 32.

Radice subfusiformi; caulibus herbaceis subsimplicibus; foliis subradicalibus, elongato-lanceolatis, petiolatis, pilosis; caulinis distantibus, brevibus, linearibus, sessilibus; floribus subcapitato-terminalibus, dente calycis uno, quandoque duobus tuboque corollæ longissimis.

Habitat in montibus ad Prome ripæ Irawaddi in regno Burmanico, florens fine anni.

Radix subfusiformis, lignosa, digitum crassa, longiuscula, fusca, *fibras* exserens multas, teretes, ramulosas. Caules aliquot graciles, erecti, teretes, pedales 2-pedalesque, pubescentes, supernè pari unico vel duobus *ramulorum* brevium, oppositorum, simplicium. Folia ad basin caulis numerosa, et valdè approximata, patentia, elongato-lanceolata, utrinque attenuata et acuta, 5—6-pollicaria, quin ultrà, plana, flavo-viridia, molliter villosula, subtùs pilis canis, brevibus densiùs obsita, costâ elevatâ, nervisque paucis, valdè obliquis et ferè longitudinaliter excurrentibus; in planta juniore ferè radicalia et sessilia, sed in adultiore, propter elongationem caulis, versus basin hujus paribus aliquot approximatissimis disposita, et tunc suffulta *petiolo* canaliculato, 2—3-pollicari, a folio decurrente marginato, basi membranaceo-dilatato, subamplexicauli. Folia *caulina* pauca, remotissima, brevia, pollicaria vel 2-pollicaria, linearia, acuminata, pilosula, opposita, sessilia. Flores cœrulei, subsessiles, numerosi, admodùm approximati in capitulum hemisphæricum, sesquipollicare, caulis ramorumque terminale; inferiores, elongatione plantæ, advectâque floratione aliquâ distantiâ deorsùm sparsi et remotiusculi; singuli suffulti *bracteolâ* lineari, ovarium æquante, ciliatâ. Pedicelli carnosi, brevissimi, villosuli. Calyx constans dentibus 4 vel 5 acutis, ciliatis, seriùs deciduis, 1 rariùs 2 reliquis minutis, subulatis pluries longioribus, linearibus, tubi dimidium ferè æquantibus. Corolla hypocrateriformis, extùs glabra; *tubus* gracillimus, pallidus, lineas 10 longus, apice cylindraceo-dilatatus; *limbus* stellatim patentissimus, tubo triplò brevior, 4-partitus, *laciniis* lanceolatis, obtusis; *faux* pervia, intus densè pilosa. Stamina 4, tubi apici dilatatæ infrà inserta, inclusa; *filamenta* brevissima. Antheræ oblongæ, erectæ. Ovarium parvum, ovato-oblongum, dentibus calycis valdè inæqualibus coronatum, pilisque densis, canis villosum, 1-loculare, 2-sporum; *ovula* planiuscula, pendula. Stylus capillaceus, corollâ parùm longior. Stigmata 2 exserta, teretia, longiuscula, divaricato-revoluta, purpurascentia.

Plate XXXII. Fig. 1. Flower. 2. Calyx. 3. The same dissected, showing the pistil;—these two figures exhibit, besides, the difference which occurs in one or two of the teeth being elongated. 4. Corolla opened.

APHANOCHILUS POLYSTACHYUS. Tab. 33.

Foliis oblongis, basi attenuatis, nervosis; spicis laxis, teretibus, paniculatis; foliis floralibus bracteæformibus, minutis; corollis calyce quadruplò longioribus. *Benth. in Botan. Reg. vol.* 15. *ad calcem num.* 1282; *et infrà, p.* 29.

Perilla fruticosa, Don Prodr. Flor. Nepal. p. 115?

Crescit in montibus convallis Napaliæ altissimis Sheopore et Chandaghiri, florens sub pluviis, fructifer mense Octobre.

Suffrutex 2—3-pedalis, erecta, supernè ramosa. Caulis strictus, obtusè quadrangularis, quadrisulcatus, basi pennam cygneam crassus, griseus, supernè ramique pilis brevibus, subulatis, copiosis villosi. Rami ex alis superioribus, breves, subsimplices, oppositi, erecto-patentes. Folia approximata, patentia interstitiis triplò longiora, lato-lanceolata, nunc ovato-lanceolata, acutissima, serrata, serraturis ovatis, acutis, aliquandò duplicatis, basi attenuato-acutâ integerrima, 5-pollicaria, pubescentia, suprà atro-viridia, subtùs pallida, nervis multis gracilibus, valdè obliquis, costâque elevatis, villosulis, glandulisque minutissimis, subglobosis, numerosis, resinosis, fuscis, attritu odorem aromaticum, gratum spargentibus. Folia *summa* lineari-lanceolata, vel sublinearia, parva, subsessilia, serrulata. Petioli brevissimi, vix unguiculares, suprà sulcati. Spicæ terminales, solitariæ, et axillares foliorum summorum oppositæ, erectæ, brevè pedunculatæ vel ferè sessiles, paniculatæ, cylindraceæ, obtusæ, pennam cygneam ad digitum minimum crassæ, 4—5-pollicares, cano-villosæ. Flores valdè numerosi et densi, parvi, flavicantes, brevissimè pedicellati, undique patentes, dispositi in fasciculos oppositos, suffultos *bracteis* (*foliis floralibus* Benth.) lanceolatis, 2-linearibus. Calyx subovatus, villosulus, glanduloso-punctatus, fauce parùm angustatâ 5-dentatus, dentibus lanceolatis, acutis. Corolla tubulosa, parùm incurva, calyce triplò quadruplòve longior, pubescens et punctata, vix ampliata versus limbum obscurè bilabiatum, subinæqualiter 4-fidum; *lacinia superior* recta, leviter fornicata, retusa; *inferior* lato-ovata, *lateralesque* obtusæ, illâ breviores, patentiusculæ. Stamina distantia, recta, subæqualia, parùm exserta, glabra. Antheræ reniformes, lobis divaricatis, fissurâ continuâ dehiscentibus, loculoque communi demùm hiantibus. Ovaria disco luteo, magno, 4-dentato suffulta, dente infimo longiore, subulato. Stylus glaber, longitudine staminum. Stigma bilobum, lobis subulatis, divergentibus. Caryopsides oblongo-triangulares, fuscæ, glabræ.

The whole plant, as also the following species, although in a less degree, possesses a pleasant aromatic smell, which is elicited by attrition. It has a somewhat rigid habit, and its leaves are of a dark green colour.

Plate XXXIII. Fig. 1. Flower. 2. 3. Anther before and after the bursting of the cells. 4. Pistil.

APHANOCHILUS FLAVUS. Tab. 34.

Foliis petiolatis, latè ovatis, acuminatis, nervosis; spicis laxis, teretibus, axillaribus, terminalibusque; foliis floralibus bracteæformibus, ovato-lanceolatis, acuminatis, calyces subæquantibus; corollis calyce duplò longioribus. *Benth. in locis citatis.*

Habitat in montibus altissimis Napaliæ, Sheopore et versus Gossain Than. Tempus florendi et fructificandi idem ac præcedentis speciei.

Suffrutex erecta, 2-pedalis, simpliciter ramosa, omnibus partibus villositate parcâ, canâ, molli obsita. Caulis ramique obtusè 4-angulares. Folia ampla, patentissima, ovata, acuminata, serrata, serraturis lato-ovatis, acutis, basi subcontractâ, obtusâ, nunc rotundatâ integerrima, interstitiis triplò longiora, palmaria, suprà glabriuscula, subtùs pubescentia, minutim glanduloso-punctata, nervoso-venosa, nervis inferioribus suboppositis; *summa* subsessilia, lanceolata, serrulata. Petioli graciles, teretes, suprà sulcati, 2—3-pollicares, villosuli. Spicæ terminales solitariæ vel ternæ, axillaresque oppositæ, brevè pedunculatæ, cylindricæ, erectæ, obtusæ, digitum minimum crassæ, densifloræ, paniculatæ. Flores valdè numerosi, undique patentes, flavi, villosuli et glanduloso-punctulati, odorati, fasciculati, brevè pedicellati; *fasciculi* multiflori, oppositi, suffulti *bracteis* (*foliis floralibus* Benth.) ovatis, acuminatis, villosis, ciliatis, dimidiò brevioribus; prætereà *bracteola* linearis ad basin singuli pedicelli. Calyx oblongus, subquinquangularis, 10-nervosus, villosus, glanduloso-punctatus, 5-dentatus; dentibus lanceolatis, acutis, ciliatis, 3-nerviis, æqualibus; fructus parùm auctus, aridus, ferrugineus. Corolla calyce vix duplò longior; *limbus* subbilabiatus, 4-lobus; *lobus superior* erectus, leviter fornicatus, obtusus, retusus; *reliqui* ovati, patuli, *intermedio* majusculo, crenulato. Stamina glabra, parallela, didyma; *antheræ* reniformes, loculis inæqualiter bilobis, demùm reflexis et fissurâ communi hiantibus. Stigma subulato-bilobum, lobo inferiore elongato. Caryopsides ovales, læves, griseæ, apice rotundatæ, basi acutâ intus hilo notatæ, calyce triplò breviores.

Plate XXXIV. Fig. 1. Flower. 2. 3. Anther before and after the cells have burst open. 4. Pistil.

For the following Synoptical Account of the Indian *Labiatæ*, enumerated in my Catalogue of dried specimens, I am indebted to my esteemed friend Mr. George Bentham, to whom I am under very great obligations, both for this important addition to my work, and for the valuable assistance he has afforded me in my labours connected with the herbaria under my charge.

SYNOPSIS

Of the Genera and Species of Indian Labiatæ *enumerated in the Catalogue of the Collections in Dr. Wallich's charge.*

By George Bentham, Esq.

Tribus I. MENTHOIDEÆ. *Benth. in Bot. Reg. vol. 15. ad calc. num.* 1282.

I. Meriandra, *Benth. loc. cit.*

Calyx ovatus, bilabiatus, labio superiore concavo, integro vel brevissimè 3-dentato, inferiore bifido; intùs fauce nudâ. Corolla tubo calycem subæquante, subæqualiter 4-fida, lobis patulis. Stamina 2, rariùs 3 vel 4, subexserta, distantia. Antheræ 2-loculares, loculis distinctis, stipitatis, connectivo lineari infra medium adnatis. Stylus apice subæqualiter 2-fidus, lobis subcomplanatis.

Although the structure of the anthers bears considerable analogy to that of the anthers of *Salvia*, yet this affinity does not appear to be of sufficient importance to require the placing the two genera in the same tribe, when the direction of the stamina and the form of the corolla are so different. In *Thymbra spicata*, as well as in several species of *Calamintha* and *Acynos*, the cells of the anthers are more or less separated by the fleshy connectivum, without this character running through the whole of the species even of the same genus.

1. *M. bengalensis* (Benth. in Wall. Catal. Herb. Ind. num. 1526), caule glabriusculo, ramis canescentibus, verticillastris remotis, racemoso-paniculatis.—*Salvia bengalensis*, Roxb. Fl. Ind. 1. p. 146. *S. dianthera*, Roth. Nov. Spec. p. 18. *S. indica*, Herb. Heyn. *S. stellata*, Hamilt. MSS.

Folia ferè *Salviæ officinalis*. Racemi sæpiùs numerosi, paniculati. Verticillastri 20—30-flori, subglobosi. Folia floralia[*] calycibus sæpiùs breviora. Calyces breviter pedicellati, pubescentes, post anthesin aucti. Flores magnitudine *Thymi Serpylli* vel *vulgaris*. Stamina exserta, 2, rariùs 3 vel 4.—"Foliorum sapor et odor fortiores quàm in *Salvia officinali*," *Roxb. loc. cit.* "Odor totius plantæ attritu valdè camphoratus," *Wall. MSS.*

Colitur in hortis Hindustaniæ.

2. *M. strobilifera* (Benth. loc. cit. n. 1527), ramis densè floccoso-tomentosis; verticillastris spicatis, inferioribus subremotis; foliis floralibus bracteæformibus, ovato-lanceolatis, quadrifariàm imbricatis. —*Salvia strobilifera*, Wall. MSS.

Frutex 2—3-pedalis et ultrà. Folia rugosissima, basi hastato-sagittata. Verticillastri pauciflori, bracteis parvis, ligulatis. Flores minuti. Stamina vix exserta.—"Odor totius fortis, ingratus," *Wall. MSS.*

Hab. in Sirmore.

II. MENTHA, *Linn. Gen.* 713.

Calyx ovatus vel campanulatus, æqualis, 5-dentatus intùs fauce nudâ vel villosâ. Corolla tubo calycem ferè æquante, subæqualis, 4-fida, lobo superiore latiore, sæpiùs emarginato. Stamina 4, distantia, exserta, vel tubo inclusa. Filamenta nuda. Antheræ 2-loculares, loculis parallelis. Stylus apice subæqualiter bifidus.

1. *M. Royleana* (Wall. Cat. n. 1537), caule erecto, ramoso, tomentoso; foliis oblongis, breviter petiolatis, subtùs incano-tomentosis, argutè et inæqualiter serratis; spicis elongatis, tenuibus; verticillastris inferioribus subremotis; calyce tomentoso, campanulato, obtusè 5-dentato; corollæ lobo superiore emarginato; staminibus corollam æquantibus; stylo exserto.

Habitu *M. sylvestri* similis, sed magis tomentosa, spica gracilior, elongata. Flores minuti.

Hab. in Deyra Dhoon, ubi detexit Dom. J. F. Royle.

2. *M. Pudina* (Herb. Hamilt.), glaberrima, caule adscendente, subramoso; foliis subsessilibus, ovatis, cordatis, undulatis, lacerato-dentatis; spicis oblongis, laxiusculis; verticillastris multifloris; foliis floralibus lineari-lanceolatis; dentibus calycinis bracteisque subulatis; corollæ lobo superiore integro; staminibus longè exsertis. —*M. crispa* var. *exserta*, Wall. Cat. n. 1536. *M. sativa*, Roxb. Hort. Beng. p. 44.

Patria dubia. Colitur per totam Hindustaniam.

III. COLEBROOKEA, *Smith Exot. Bot.* 2. *p.* 111.

Calyx æqualis, 5-partitus, plumosus, maturatione papposus, acheniis adherens. Corolla tubo calycem subæquante, ferè æqualis, 4-fida, lobo superiore emarginato. Antheræ 4, subsessiles, 2-loculares, loculis parallelis. Stylus profundè 2-fidus.

Frutices tomentosi, verticillastris multifloris spicatis, spicis paniculatis, floribus minutis involucratis.

1. *C. ternifolia* (Roxb. Corom. 3. p. 40. t. 245), ramis, foliis, spicisque ternatim verticillatis.

Folia breviter petiolata, subtus densè ferrugineo-tomentosa, oblongo-lanceolata, utrinque attenuata.

Hab. in montibus Carnaticis.

2. *C. oppositifolia* (Smith loc. cit.), ramis, foliis, spicisque oppositis.

Folia longiùs quàm in præcedente specie petiolata, minùs tomentosa. Spicæ minores, graciliores.

Hab. in Napalia et Kamaon.

IV. PERILLA, *Linn. Gen. p.* 578.

Calyx campanulatus, per anthesin subæqualis, 5-fidus, post anthesin bilabiatus, labio superiore dilatato, 3-lobo, inferiore 2-fido, intus fauce nudâ. Corolla calycem ferè æquans, subæqualis, breviter 5-fida. Stamina 4 distantia, corollam æquantia. Antheræ 2-loculares, loculis parallelis, demùm divergentibus vel subdivaricatis. Stylus profundè 2-fidus.

1. *P. ocymoides*, Linn. loc. cit.

Hab. in Napalia, Ava.

The *P. macrostachya* Wall. Cat. n. 1559 is probably the *P. ocymoides* in a more advanced state. This is the only described species, which really belongs to the genus; there are, however, in the Banksian herbarium, two Chinese plants, which appear to be true *Perillæ*.

V. ELSHOLTZIA, *Willd. Spec.* 3. *p.* 59.

Verticillastri spicati et folia floralia bracteæformia secunda. Calyx æqualis, 5-dentatus, intus fauce nudâ. Corolla tubo leviter exserto, limbo subæquali, breviter 5-fido. Stamina 4 distantia. Antheræ lineares, 2-loculares, loculis divaricatis. Stylus apice subæqualiter bifidus.

1. *E. cristata*, Willd. loc. cit.

Caulis herbaceus, erectus, ramosus, glaber. Folia petiolata, inferiora ovata, superiora oblonga, utrinque attenuata. Spicæ terminales, 2—3-unciales. Verticillastri secundi, approximati, multiflori. Folia floralia bracteæformia, ovata, acuminata, margine ciliata, flores paullò superantia. Calyces ciliato-hirsuti. Bracteæ minutæ, lineares.

Hab. in Emodo ad Gossain Than.

VI. APHANOCHILUS, *Benth. in Bot. Reg. vol.* 15.

Calyx subæqualis, 5-dentatus, intùs fauce nudâ. Corolla tubo nunc exserto, nunc calycem æquante, breviter 4-fida, lobo superiore suberecto, subconcavo, emarginato, inferioribus patentibus. Stamina 4, sæpiùs exserta, distantia. Antherarum loculi divergentes vel divaricati, demùm confluentes. Stylus apice subæqualiter 2-fidus.

1. *A. blandus* (Benth. in Wall. Cat. n. 1550), canescens, foliis oblongis, utrinque attenuatis; verticillastris secundis, laxè spicatis; spicis paniculatis.—*Mentha blanda*, Wall. MSS. ann. 1821. *Perilla polystachya*, Don Prod. Flor. Nepal. p. 114?

Caulis erectus, ramosus. Folia 2—3-pollicaria, latitudine semipollicaria, grossè serrata, basi in petiolum attenuata, suprà viridia, subtùs canescentia. Spicæ numerosæ, paniculatæ, 3—6-pollicares. Verticillastri circiter 20-flori. Flores breviter pedicellati, minuti. Bracteæ subulatæ. Calyx post anthesin auctus. Corolla calycem vix superans.—"Odor totius aromaticus, debilis," *Wall. MSS.*

Hab. in montibus Napaliæ, Sillet, et Avæ.

2. *A. fœtens* (Benth. loc. cit. n. 1551), foliis rhomboideis, ovatis, inciso-serratis, petiolatis; verticillastris æqualibus, laxè spicatis; spicis paniculatis.—*Mentha fœtens*, Wall. MSS. *M. blanda*, Decand. Plant. Rar. Hort. Genev. p. 23. t. 8? Lindl. in Transact. Hort. Soc. 6. p. 275. *Aphanochilus incisus*, Benth. loc. cit. n. 1552. *Mentha incisa*, Wall. MSS.

Præcedenti affinis. Differt foliis brevioribus, latioribus, haud oblongis, profundiùs incisis, spicis viscosis, tenuioribus, brevioribus (1—1½-pollicaribus), foliis floralibus subulatis, flores superantibus.—"Odor gravis *Chenopodii botrydis*," Wall. MSS.

Hab. in Napalia.

3. *A. flavus*, Benth. loc. cit. n. 1553; et suprà p. 27. *Mentha flava*, Wall. MSS.

Hab. in Napalia.

4. *A. polystachyus*, Benth. loc. cit. n. 1554; et suprà p. 28. *Mentha polystachya*, Wall. MSS. *Perilla fruticosa*, Don Prodr. Flor. Nepal. p. 115?

Hab. in Napalia.

5. *A. eriostachyus* (Benth. loc. cit. n. 1555), caule pubescente; foliis breviter petiolatis, ovatis, subtus pubescentibus; spicis densis, tomentosis; foliis floralibus bracteæformibus ovatis, floribus brevioribus.

---

[*] In the *Labiatæ* I give the name of *folia floralia* to those leaves or bracts, which are immediately under the verticillastri, and of which there are always two opposite to each other; and reserve the name of *bracteæ* for those, which are placed at the base of each pedicel and are always single.—G. B.

Habitus ferè *Cyclostegiæ strobiliferæ*. Spicæ terminales, 1—1½-pollicares. Calyces lanato-tomentosi. Corolla calycem paullò superans.

Hab. in Napaliæ montibus, et Emodum versus.

6. *A. pilosus* (Benth. loc. cit. n. 1556), caule foliisque ovatis, piloso-hirsutis; spicis densis, hispidis; foliis floralibus bracteæformibus, subulatis, imbricatis, flores superantibus.

Præcedenti habitu affinis, sed inflorescentiâ valdè diversa.

Hab. in Napalia.

7. *A.? paniculatus* (Benth. loc. cit. n. 1557), glaber, foliis ovatis; spicis densis, teretibus, paniculatis . . . .

The specimens of this plant in Dr. Wallich's collection are in too far advanced a state to be determined with accuracy; but it appears to be nearly allied to the preceding species.

Hab. in Napalia.

The *Perilla elata*, Don Prodr. Fl. Nepal. p. 115, appears to constitute another species of *Aphanochilus*.

VII. Cyclostegia, *Benth. in Bot. Reg. vol.* 15.

Florum spica strobiliformis. Folia floralia bracteæformia, membranacea, venosa, margine ciliata, imbricata, cyathiformia, ex duobus oppositis connatis constantia. Calyx æqualis, 5-dentatus. Corolla tubo exserto, 4-fida, lobis subæqualibus, superiore suberecto, emarginato, inferioribus subpatentibus. Antheræ ovatæ, loculis confluentibus. Stylus apice subæqualiter 2-fidus.

1. *C. strobilifera*, Benth. in Wall. Cat. n. 1562. *Mentha strobilifera*, Wall. MSS. *Majana fœtida*, Rumph. Amb. vol. 6. p. 41. tab. 16. fig. 2. *Mentha fœtida*, Burm. Flor. Ind. p. 126.

Caulis herbaceus, erectus, semipedalis vel pedalis, glaber, vel basi et axillis pilis mollibus pubescens. Folia ovata, petiolata, basi parùm attenuata. Spicæ cylindricæ, 1—2-pollicares. Verticillastri 6—10-flori. Flores foliis floralibus subinclusi. Bracteæ minutæ. —" Odor totius perquam gratus, aromaticus," *Wall. MSS.*

Hab. in Napalia et ad Gossain Than Emodi.

VIII. Dysophylla, *Blume Bijdragen, p.* 826.

Calyx æqualis, 5-dentatus, intùs fauce nudâ. Corolla tubo calycem subæquante, 4-fida, lobo inferiore subpatente. Stamina 4, exserta, distantia. Filamenta barbata. Antheræ terminales, 1-loculares, rimâ transversali dehiscentes. Stylus apice subæqualiter 2-fidus. Flores densè spicati, foliis floralibus bracteæformibus.

* *Foliis verticillatis.*

1. *D. stellata* (Benth. in Wall. Cat. n. 1542), glabra, caule repente, ramis erectis, simpliciusculis; foliis 6—8-verticillatis, angustè linearibus, internodia subæquantibus, integerrimis; floralibus subulatis; calycis villosi, ovati, dentibus erectis, acutiusculis.—*Mentha stellata*, Lour. Cochinch. p. 361. *M. malabarica*, Herb. Heyn. *M. quaternifolia*, Roth. Nov. Spec. p. 256?

Caulis basi repens, radicans. Rami numerosi, simplices vel parcè ramosi. Folia ferè *Galii veri*, vix ½-uncialia. Spica 1—3-pollicaris.

Hab. . . . Herb. Heynean.

2. *D. pumila* (Benth. loc. cit. n. 1546), glabra; caule ascendente, ramoso; foliis quaternis, inferioribus subsenis, elliptico-linearibus, utrinque attenuatis, remotè serratis; floralibus ovatis; calycis villosi, campanulati, fructiferi inflati, dentibus obtusiusculis, suberectis.—*Mentha pumila*, Graham in Edinb. New Phil. Journ. 1828. p. 393. *M. verticillata*, Hook. in Curt. Bot. Mag. vol. 56. t. 2907, non Roxb. *M.? quadrifolia*, Herb. Hamilt.

Folia 1—1½-pollicaria, utrinque serraturis 2—3 remotis. Spica vix pollicaris. Folia floralia calycibus vix breviora.

This species appears to me to be very distinct from Roxburgh's *M. verticillata*, a Bengal plant, of which I have seen no specimen from Nipal. Mr. Don informs me that his description (*Prodr. Fl. Nepal. p.* 114), which refers to the true *D. verticillata*, was in fact taken from Dr. Roxburgh's Bengal specimens.

Hab. in Napalia.

3. *D. crassicaulis* (Benth. loc. cit. n. 1545), glabra; caule adscendente, ramoso; foliis quaternis, nunc quinis vel senis, lanceolatis, linearibus, basi dilatatis, subintegerrimis; spicis elongatis; foliis floralibus lanceolatis, flores superantibus; calycis pubescentis dentibus obtusiusculis, suberectis.—*Mentha stellata*, Herb. Hamilt.

Rami verticillati. Folia sæpè 2—3-uncialia, basi dilatato-amplexicaulia. Spicæ 3—5-pollicares.

Hab. ad Sillet.

4. *D. verticillata* (Benth. loc. cit. n. 1544), glabra, caule erecto, ramis foliisque 6—10-verticillatis; foliis elongato-linearibus, utrinque attenuatis; spicis densissimis; calycis fructiferi dentibus ovatis, stellato-patulis.—*Mentha verticillata*, Roxb. Hort. Beng. p. 44. *Dysophylla ramosissima*, Benth. loc. cit. n. 1543.

Hab. ad Sillet.

5. *D. quadrifolia* (Benth. loc. cit. n. 1539), velutino-pubescens vel tomentosa; caule erecto, subramoso, ramis verticillatis; foliis quaternis, elliptico-linearibus, integerrimis vel remotè serratis, utrinquè attenuatis; spicis elongatis, verticillatis, inferioribus subremotis; foliis floralibus linearibus, floribus brevioribus; calycis ovati dentibus angustè lanceolatis, acutis, erectis.

α densè tomentoso-pubescens. *Mentha quadrifolia*, Roxb. Hort. Beng. p. 44.

β breviter velutino-pubescens, foliis nervosis, basi in petiolum attenuatis. *Mentha velutina*, Wall. MSS. *Dysophylla velutina*, Benth. loc. cit. n. 1538.

γ parcè pubescens, foliis angustè linearibus. *Dysophylla linearis*, Benth. loc. cit. n. 1540.

Caulis erectus, parcè ramosus, ramis quaternis, simplicibus. Folia 1—2-pollicaria, in var. β 3-pollicaria. Spicæ 3—6-pollicares, verticillastris subdistinctis.

Hab. α Mont. Circar. β Tavoy oræ Tenasserim. γ Pundua.

6. *D. cruciata* (Benth. loc. cit. n. 1541), pilis mollibus patulis hirsuta; caulibus elongatis, procumbentibus, simpliciusculis; foliis quaternis, rariùs quinis vel senis, lanceolatis, obtusis, integerrimis, margine revolutis; spicis densis, verticillastro inferiore distincto; foliis floralibus lanceolatis, flores subæquantibus; calycis villosi dentibus obtusiusculis, suberectis.

Folia semipollicaria aut vix pollicaria. Spicæ 1½—3-pollicares.

Hab. in Napalia.

** *Foliis oppositis.*

7. *D. Auricularia* (Blume Bijdrag. p. 826), pilis mollibus patulis hirsuta; caulibus procumbentibus, parcè ramosis; foliis oppositis, subsessilibus, ovatis, grossè serratis; spicis densissimis; bracteis ovato-lanceolatis, flores subæquantibus; calycis villosi dentibus ovatis, post anthesin conniventibus.—*Mentha Auricularia*, Linn. Mant. p. 81.

Hab. in Bengala orientali; Penang; Taong Dong prope Avam.

8. *D. strigosa* (Benth. loc. cit. n. 1549), pilis adpressis, strigosis pubescens; caule erecto, subramoso; foliis oppositis, subsessilibus, lanceolato-ovatis, grossè serratis; spicis crassis, laxiusculis; foliis floralibus lanceolatis, floribus brevioribus; calycis ovati, hirsuti dentibus subulatis, erectis.

Spicæ 3—4-pollicares, crassiores et flores majores quàm in cæteris speciebus. Verticillastri subdistincti. Folia ferè *D. Auriculariæ.*

Hab. ad Sillet.

9. *D. myosuroides* (Benth. loc. cit. n. 1547), sericeo-tomentosa; caule erecto ramoso; foliis oppositis, breviter petiolatis; spicis densis; foliis floralibus ovatis, minutis; calycis tomentosi dentibus brevissimis. *Mentha myosuroides*, Roth. Nov. Spec. p. 257.

Hab. . . . Herb. Heynean.

IX. Pogostemon, *Desf. Mem. Mus.* 2. *p.* 154.

Calyx æqualis, 5-dentatus, intus fauce nudâ. Corolla 4-fida, subbilabiata, labio superiore 3-fido, inferiore integro, lobis omnibus integerrimis, patentibus. Stamina 4, exserta, distantia. Filamenta barbata vel nuda. Antheræ terminales, uniloculares, rimâ transversali dehiscentes. Stylus apice subæqualiter 2-fidus.

* *Filamentis barbatis.*

1. *P. paniculatum*, caule erecto, ramoso, pilis adpressis, erectis pubescente; foliis ovatis, inciso-serratis, basi attenuatis; verticillastris remotè spicatis, globosis, secundis; spicis terminalibus; bracteis lato-ovatis, membranaceis, calyces superantibus; calycis membranacei, pubescentis, dentibus lanceolatis.—*Elsholtzia paniculata*, Willd. Spec. 3. p. 59.

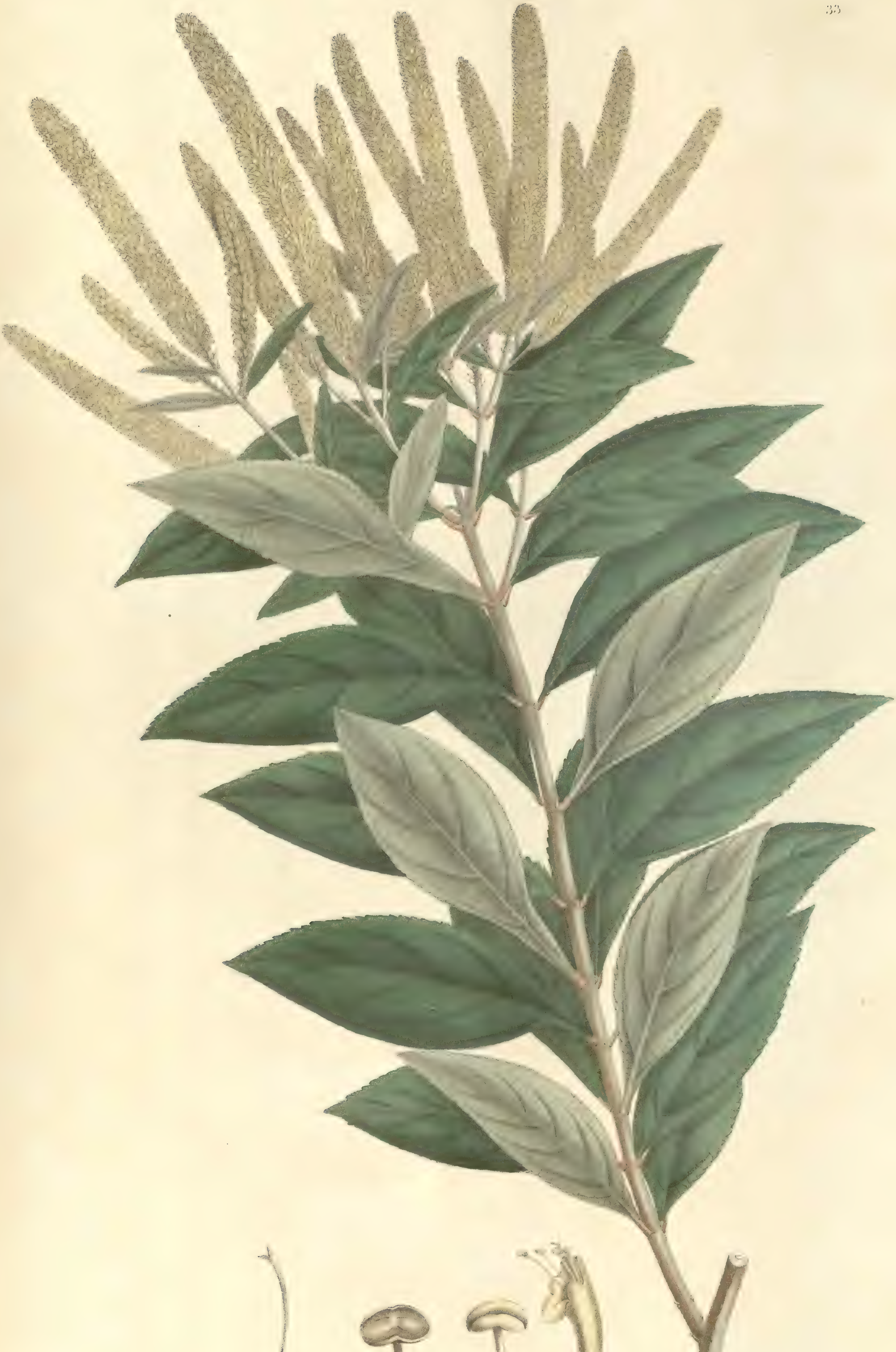
Flores minuti. Characteres omninò generis.

Knoxia plantaginea

Vishnupersaud fec.

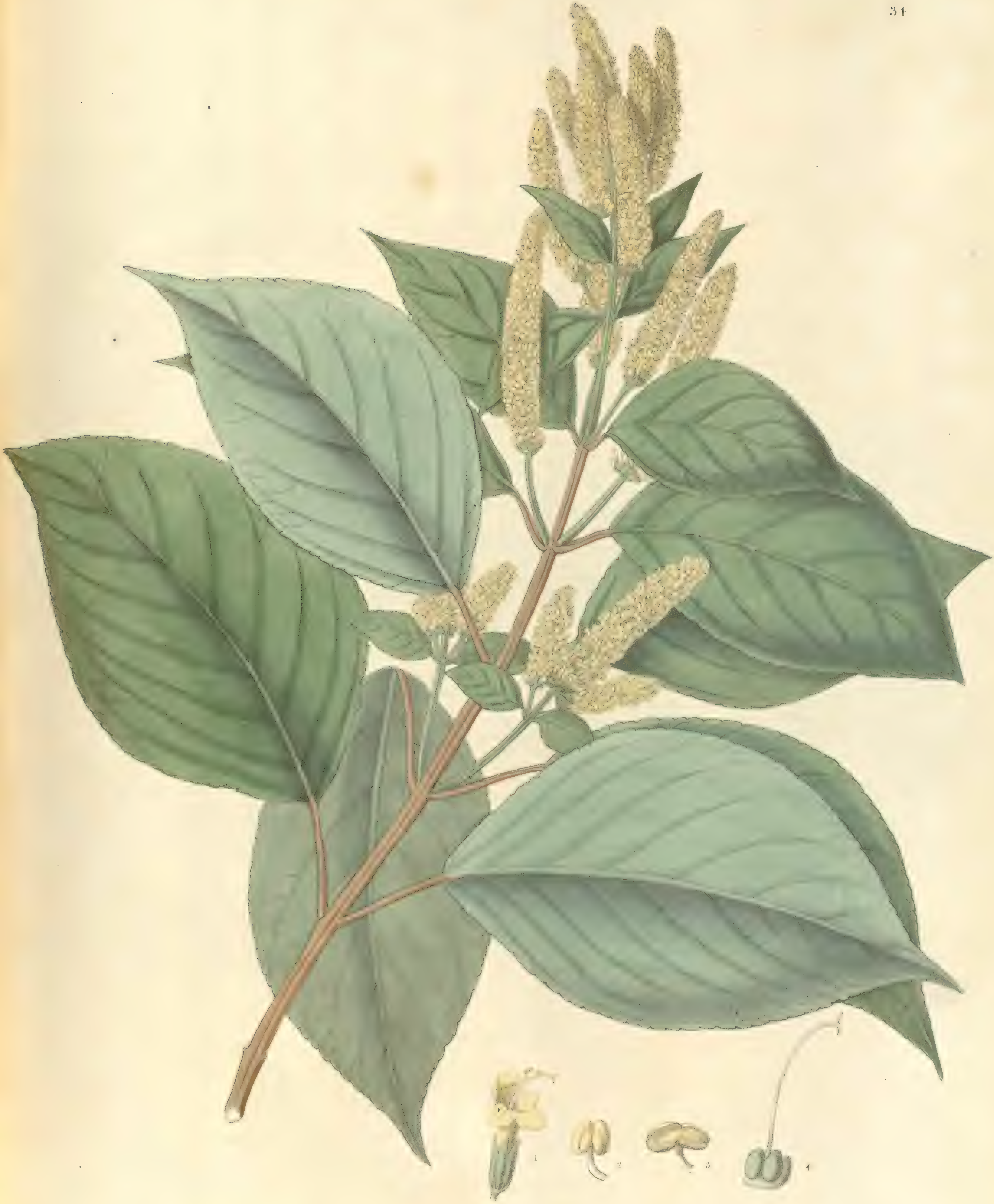
Printed by Engelmann, Graf, Coindet & Co

M. Gauci del.



[illegible] Graf. Condor & Co

Aphanochilus polystachya



Geracbard del.

[illegible]

Aphanochilus flava.

Hab. . . . .

2. *P. plectranthoides* (Desf. l. c. t. 6), cano-pubescens, caule erecto, ramoso; foliis ovatis, basi attenuatis, duplicato-serratis; floribus subsecundis, glomerato-spicatis; spicis ovatis, pedunculatis, paniculatis; bracteis lato-ovatis, striatis, glanduloso-punctatis, calyces superantibus; calycis membranacei, hirsuti, glanduloso-punctati dentibus lato-lanceolatis, acutis.—*Mentha secunda*, Roxb. Hort. Beng. *Hyssopus nepetoides*, Herb. Heyn. *Origanum benghalense*, Burm. Ind. p. 128. t. 38. f. 3?

Hab. in Hindustania, Napalia, Kamaon.

3. *P. parviflorum* (Benth. loc. cit. n. 1531), caule adscendente, pubescente; foliis glabriusculis, ovatis, basi attenuatis, duplicato-crenatis; floribus subsecundis, glomerato-spicatis; spiculis racemosis; racemis axillaribus terminalibusque; bracteis ovatis, striatis, pubescentibus, flores superantibus; calycis villosi, membranacei dentibus angustè lanceolatis. *Mentha integra*, Herb. Hamilt.

Folia majora, glabriora quàm in *P. plectranthoide;* corollæ triplò minores, lobis angustioribus; spiculæ tenuiores; calyces longiores.

Hab. ad Sillet.

4. *P. Heyneanum* (Benth. loc. cit. n. 1532), caule adscendente, pubescente; foliis glabriusculis, ovatis, basi attenuatis, irregulariter crenatis; verticillastris subsecundis, interruptè spicatis; spicis paniculatis; bracteis ovatis, subenerviis, calyces subæquantibus; calycis pubescentis dentibus ovatis.—*Origanum Benghalense*, Herb. Heyn. *Origanum indicum*, Roth. Nov. Gen. et Spec. p. 266?

Corolla ferè *P. parviflori*, sed bracteis, inflorescentiâ et habitu diversum.

Hab. . . . . Herb. Heyn.

5. *P. glabrum* (Benth. loc. cit. n. 1533), glaberrimum; caule erecto; foliis ovatis, basi attenuatis, longè petiolatis, crenatis; verticillastris subæqualibus, globosis, spicatis; spicis paniculatis; bracteis ovatis, calyce triplò brevioribus; calycis glabri dentibus ovato-lanceolatis.

Hab. in Napalia.

6. *P. tuberculosum*, pilis brevibus, stellatis, ex tuberculo ortis pubescens; caule erecto, tuberculoso; foliis ovatis, basi attenuatis, petiolatis, duplicato-serratis, utrinque tuberculoso-rugosis; verticillastris distinctis, remotis, æqualibus, globosis, spicatis; spicis paniculatis; bracteis minutis; calycis tuberculosi dentibus subulatis.

Hab. in Napalia.

7. *P. rotundatum* (Benth. loc. cit. 1535), pubescens; caule adscendente; foliis lato-ovatis, duplicato-crenatis, basi rotundatis vel cordatis; racemis simplicibus; verticillastris æqualibus, subremotis; bracteis minutis; calycis villosi dentibus lanceolatis.—*Mentha villosa*, Herb. Heyn.

Planta circiter pedalis, habitu a precedentibus recedens. Racemus simplex, 3—6-pollicaris. Calyces tubulosi, 4—5 lineas longi.

Hab. . . . . Herb. Heyn.

8. *P. vestitum* (Benth. loc. cit. 1534), tomentoso-lanatum; caule adscendente; foliis rugosis, molliter tomentosis, ovatis, basi subcordatis, crenatis; spicis simplicibus; verticillastris secundis, approximatis; bracteis minutis; calycis villosi dentibus lanceolatis.

Statura precedentis, cui affine, sed characteribus notatis distinctum.

Hab. . . . . Herb. Heyn.

** *Filamentis glabris.*

9. *P. speciosum*, caule erecto, piloso; foliis lato-ovatis, basi cordatis, duplicato-crenatis; spicis simplicibus; verticillastris teretibus, laxis, approximatis; bracteis minutis; calycis glabriusculi, tubulosi dentibus subulatis.

Spica oblonga, 3—4-pollicaris.

Hab. . . . . Herb. Wightianum.

Tribus 2. SATUREINEÆ, *Benth. in Bot. Reg.* vol. 15. *ad calc.* 1282.

X. THYMUS, *Linn. Spec.*

Verticillastri nunc axillares, nunc spicati vel capitati. Calyx 10-striatus, ovato-tubulosus, bilabiatus, labio superiore 3-dentato, inferiore 2-fido, intus fauce villosâ. Corolla tubo calycem subæquante, bilabiata, labio superiore erecto, subplano, emarginato, inferiore patente, 3-fido. Stamina 4, distantia. Antherarum loculi paralleli. Stylus apice subæqualiter 2-fidus.

1. *Th. linearis* (Benth. in Wall. Cat. Herb. Ind. n. 1567), suffruticosa, procumbens; ramis adscendentibus, glabris vel apice villosis; foliis subsessilibus, elliptico-linearibus, obtusis, integerrimis, planis, basi ciliatis, glabris, punctatis, venosis; verticillastris 6—10-floris, subrotundo-spicatis; pedicellis calycem subæquantibus; calycis glabriusculi labio superiori breviter ovato-3-dentato, inferiore subulato-2-fido; staminibus exsertis.

Th. Marschalliano Willd. affinis; at in illo verticillastri racemosi, rami calycesque villosi, calycis labium superius subulato-3-dentatum. A varietatibus nonnullis *Th. Serpylli* vix diversus.

Hab. in Kamaon.

2. *Th. biflorus* (Hamilt. in Don. Prodr. Fl. Nepal. p. 112), suffruticosus, procumbens; ramis adscendentibus, pubescentibus vel pilosis; foliis subsessilibus, ovatis, cordatis, lanceolatis vel ellipticis, obtusiusculis, integerrimis, planis, glabris, venosis; pedunculis axillaribus, 1—3-floris, subsecundis; calycis tubulosi, pubescentis dentibus omnibus subulatis.

Hab. in Napalia, Kamaon.

XI. ORIGANUM, *Linn. Gen.* 726.

Florum spica tetragona, strobiliformis, bracteis imbricatis. Calyx varius. Corolla tubo calycem subæquante vel exserto, bilabiata, labio superiore erecto, subplano, emarginato, inferiore patente, 3-fido. Stamina 4, distantia. Antherarum loculi paralleli. Stylus apice subæqualiter 2-fidus.

1. *O. normale* (Don. Prodr. Fl. Nepal. p. 113), caule adscendente, villoso, subramoso; foliis breviter petiolatis, ovatis, integerrimis, basi attenuatis; florum spiculis laxis, corymboso-paniculatis; bracteis ovato-lanceolatis, calycibus subbrevioribus; calycis oblongi, villosissimi dentibus subæqualibus, subulatis; staminibus exsertis.

Hab. in Kamaon, Sirmore.

2. *O. Wallichianum* (Benth. loc. cit. n. 1565), caulibus adscendentibus, glabriusculis; foliis tomentoso-canescentibus, breviter petiolatis, ovalibus, obtusis, integerrimis; spiculis ovatis, glomeratis, paniculatis; bracteis arctè imbricatis, rotundatis, ciliatis, calyces compressos, dilatatos, infrà fissos subsuperantibus; staminibus breviter exsertis.

Hab. in Napalia.*

LIPARIS LONGIPES. Tab. 35.

PSEUDOBULBIS longissimis, teretibus, diphyllis; foliis ensiformi-lanceolatis, racemo stricto, multifloro brevioribus; scapo ancipite; labello ovato, acuto, ecalloso, columnæ longitudine; petalis linearibus. *Lindl. MSS.*

Liparis longipes *Lindl.*

* This Synopsis will be concluded in another part of this volume.

Arborum et rupium parasitica in montibus Sillet confinibus, unde in hortum botanicum Calcuttæ misit M. R. Smith. In montibus Ceylonæ detexit *Macrae* (Lindl.). Floret tempore anni calido.

Nomen Khasianum: *Atia Khuri.*

Planta erecta, gracilis, pedalis—1½-pedalis, lævis. Pseudobulbus cylindraceo-attenuatus, 5-pollicaris, involutus *squamis* magnis, oblongis, acutis, laxiùs vaginantibus, 2-pollicaribus, aridis, membranaceis, infimis parvis; basi digitum crassâ exserens *fibras radicales* teretes, villosas, simplices; apice nudiusculâ subalternatim diphyllus. Folia ensiformi-linearia, erectiuscula, leviter divergentia, coriacea et firma, acuta, marginibus ferè rectilineis, suprà lucida, canaliculata, subtùs costâ subcarinatâ; basi parùm angustatâ, et complicatâ unum super alterum, parvâ ab invicem distantiâ, pseudobulbi apici inserta, 6—8-pollicaria. Scapus gracillimus, subfiliformis, leviter anceps, ex apice pseudobulbi surgens, basi folii summi parùm amplexus, cæterùm liber, erectus, 3-pollicaris, sursùm *bracteis* paucis, vagis, lanceolato-linearibus, acuminatis, erectis, unguicularibus. Racemus terminalis, erectus, gracilis, cylindricus, attenuatus, spithamæus, supra folia elevatus, basi digitum crassus, constans *floribus* parvis, numerosis, undique sparsis, albis, labello flavicante, breviter pedicellatis, *bracteâ* parvâ, lanceolatâ, patulâ, albicante, pedicello breviore suffultis. Sepala ferè æqualia, ovata, acuta, distincta. Petala linearia, angustissima. Labellum simplex, nudum, unguiculare, suprà flavicans, basi vix infundibuliforme, apice parùm expansum in *laminam* ovatam, acutam. Columna gracilis, libera, semiteres, leviter versus labellum arcuata, hujusque ferè longitudine, apice subtruncato-concaviuscula. Anthera terminalis, persistens, semiglobosa, bilocularis. Massæ pollinis 2, oblongæ, posticè sulcatæ. Ovarium brevissimum, subclavatum.

Plate XXXV. Fig. 1. Flower. 2. The same dissected. 3. Upper part of the column with the anther and pollen masses detached.

ERIA PANICULATA. Tab. 36.

Foliis lineari-lanceolatis, acuminatis, subtùs glaucis; caulibus teretibus, pendulis, elongatis; racemis terminalibus, aggregatis, cylindraceis, multifloris; sepalis lanatis, ovatis, obtusis, petalisque minoribus, guttatis; labello trilobo, basi apiceque calloso, lobis guttatis: intermedio truncato.—*Lindl. MSS.*

Eria paniculata, *Lindl. apud Wall. in Cat. Ind. n.* 1971.

Hab. in convalle Napaliæ minore, *Noakote* dicta, arborum parasitica. Etiam crescit in montibus Pundua, Sillet confinibus. Floret Martio.

Planta parasitica, ex arborum truncis subpendula, salvâ inflorescentiâ lævis. Radix constans fibris numerosis, longis, fuscis, ramosis. Caules aliquot cæspitosi, cylindracei, 1—2-pedales, pennam cygneam crassi, extrorsùm obsoletè compressiusculi, vaginati. Folia approximata, numerosa, alterna, bifaria, angulo acuto patula, lineari-lanceolata, e basi transversè geniculata, semipollicem lata sensim attenuata, valdè acuminata, 6—8-pollicaria, crassa, coriacea et rigida, suprà lucida, leviter plicata, subtùs pallida, subglaucescentia, costâ parùm elevatâ, marginibus acutissimis, ferè scindentibus, desinentia in *vaginas* striatas, caulem arctè involventes, 2-pollicares. Racemi terminales, simplices vel bifidi, breviter pedunculati, cylindrici, digitum crassi, 3—5-pollicares, paniculam formantes ovatam, laxam pendulam. Pedunculi erubescentes, pollicares *rachesque* teretes, carnosi, tomento cano, copioso densè vestiti. Flores numerosi, approximati, undique sparsi, mediocris magnitudinis, flavicantes, suprà rufo-punctati, inodori, brevè pedicellati, extùs cano-villosi, suffulti *bracteis* ovatis, lanceolatis, acuminatis, glabris, reflexis, persistentibus, membranaceis, *pedicellum* villosum, 3-linearem æquantibus. Sepala ovata, obtusa, unà cum petalis labelloque punctis crebris, rufis guttata, extùs ad basin villosula, ætate glabriora; *anticum* leviter fornicatum; *lateralia* patentia, basi latâ infra basin columnæ elongatam connata, indè subproducta et quasi calcarata. Petala lanceolata, sepalis dimidiò angustiora paullòque breviora, valdè obtusa, columnæ lateraliter adposita, omninò glabra. Labellum sessile, adscendens, 3-lobum, lobis lateralibus ovatis obtusis, intermedio truncato, retuso, intùs disco callis duobus oblongis, altero ad insertionem labelli, altero majore, apicali in sinu lobi intermedii. Columna brevis, basi elongatâ sepala lateralia et labellum adfigens. Anthera terminalis, ovata, bilocularis, loculis fundo 4-locularibus. Massæ pollinis 8, cereaceæ, quaternatim pedicellatæ. Ovarium breve, clavatum, villosum.

"This plant is intermediate between *Dendrobium* and *Eria*, agreeing with the former in its pendulous habit and taper stems, and with the latter in fructification. *Dendrolirium* of Blume is the same genus as *Eria*, but of later date. *Octomeria* is entirely different, agreeing in nothing but the number of its pollen masses. *Octomeria* stands next *Pleurothallis*; *Eria* next *Dendrobium*."—Lindl.

Our elegant plant is a native both of the borders of Bengal, on the lofty range of mountains called Pundua, and of Nipal. In the latter country it grows in the valley of Noakote, which is considerably less elevated than the great valley of Nipal. It is, however, a rare plant in both places.

Plate XXXVI. Fig. 1. Flower. 2. The same dissected.

Liparis longipes

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lith.

Gorachand del^t

[illegible]

M Gauci lithog.

Eria paniculata.

URARIA CORDIFOLIA. Tab. 37.

Fruticosa, foliis simplicibus, lato-ovatis, cordatis, subtùs ramisque villosis; racemis terminalibus, paniculatis, elongatis, hirsutis; leguminibus 2—3-articulatis, villosis, inclusis; bracteis ovatis, acuminatis, sericeo-pilosis.

Habitat in montibus prope Prome et Meaong ripæ Irawaddi; in Taong Dong prope Avam? et in Martabania; indeque in hortum botanicum Calcuttæ introducta. Floret et fructificat fine et initio anni.

Frutex erecta, ramosa, 2—3-pedalis, omnibus partibus ferrugineo-villosa. Caulis crassus, leviter angulatus et sulcatus, ætate glabrior. Rami villosi, parùm flexuosi, subsimplices. Folia patentissima, simplicia, latissimè ovata, cordata, acuta, sinu basis plùs minùsve profundo, lobis rotundatis; palmaria, in adulta planta 10-pollicaria ad pedalia, utrinque villosa, præcipue subtùs, ubi nervoso-venosa et reticulata; *summa* multò minora, ovato-cordata, obtusissima. Petiolus cylindricus, suprà plano-sulcatus, pilosus, 2—3-pollicaris. Stipulæ lato-lanceolatæ, subtriangulares, valdè acuminatæ, nervoso-lineatæ, adpressæ, pilosæ, lineas 3 longæ. Stipellæ parvæ, lanceolatæ. Racemi brevè pedunculati, cylindrici, attenuati, digitum crassi, 6—8-pollicares, axillares foliorum supremorum simplices, et terminales ramosi et paniculati, multiflori, pilosi. Pedunculi ferè teretes; *pedicelli* gracillimi, filiformes, patentissimi, ½-pollicares, fasciculati, sæpiùs geminati ternative, valdè pilosi. Bracteæ infra divisuras paniculæ, stipulis similes; infra singulum florum fasciculum ovatæ, caudato-acuminatæ, pilis sericeis, adpressis densè vestitæ, scariosæ, valdè deciduæ. Flores parvi, ex albido rosei. Calycis pilosi dentes æquales, setaceo-acuminati, ciliati. Corolla subbilabiata, calyce duplò longior, carinâ alisque deflexis, vexillo subrotundo. Legumen calyce brevius, catenulato-spirale, depressum, villosum, 2—3-spermum, articulis subrotundo-planis, 1-spermis. Semina lævia, nitida, reniformia, olivacea.

This is a very large and distinct species, varying in the size of its leaves and the density of its hairiness according to age and situation. I am in doubt whether to consider the plant I met with on the mountain called Taong Dong near Ava, as a mere variety or a distinct species. It was exceedingly hairy, and one or two of the upper leaves were ternate, the intermediate leaflet being rhomboidal with an attenuated base. In every other respect the plant resembled the Irawaddi and Martaban specimens.

Plate XXXVII. Fig. 1. The flower. 2. The same opened.

CŒLOGYNE GARDNERIANA. Tab. 38.

Pseudobulbis ampullaceis, teretibus; foliis lanceolatis, 5-costatis, acuminatis, longè petiolatis; racemis nutantibus, densifloris, terminalibus radicalibusque, foliis tertiò brevioribus; bracteis deciduis; sepalis petalisque oblongis; labelli denticulati, basi saccati lobo medio retuso, lateralibus minore.—*Lindl. MSS.*

Habitat super arboribus ad Noakote in Napalia, unde anno 1817 misit Dom. Edwardus Gardner.

Planta admodùm speciosa, lævis. Pseudobulbus ovato-oblongus, sursùm valdè attenuatus, apice 2-phyllus, nudus, 5-pollicaris, basi *radiculas* exserens simplices, longissimas, filiformes. Folia lanceolata, acuta, utrinque attenuata, erecto-patentia, nervosa, coriacea, lævissima, lucida, pedalia. Petiolus crassus, 2-pollicaris, profundè canaliculatus. Racemi oblongi, laxi, nutantes, palmares, pedunculati; horum terminalis solitarius, foliis tertiò ferè brevior; radicales aliquot, ad basin pseudobulbi laterales. Pedunculus gracilis, filiformis, 3—4-pollicaris, involutus *bracteis* ovatis, obtusis, ventricoso-imbricantibus, deciduis, membranaceis. Flores magni, albi, remotiusculi, alterni, brevè pedicellati *rachi* tereti, flexuosâ, suffulti *bracteis* magnis, oblongo-lanceolatis, acutis, pollicaribus et ultrà, *pedicello* unguiculari triplò longioribus, concaviusculis. Sepala oblongo-linearia, acuta, sesquipollicaria, lateralia basi paullò dilatata et producta in calcar breve, conicum, obtusum. Petala sepala longitudine æquantia, sed iisdem angustiora. Labellum infundibuliforme, *laminâ* patulâ, trilobâ, denticulatâ, lobo intermedio retuso, lateralibus rotundatis minore.

The only specimen I have ever seen of this fine *Orchidea* was sent to me in the year 1817 by my highly valued friend the Hon. Edward Gardner, who received it from the valley of Noakote in Nipal. I had not the means at the time to have the plant more minutely drawn or described; it is, however, sufficiently distinct in the great size of all its parts, and in the particulars mentioned in Mr. Lindley's specific character, to admit of its being confounded with any of the other species. I have dedicated the plant to the gentleman who communicated it to me, and to whom Indian Botany, especially the Botany of Nipal, owes a vast number of interesting and valuable contributions.

DENDROBIUM FORMOSUM. Tab. 39.

Caulibus teretibus, pendulis, pilosis; foliis distichis, ovatis, apice obliquè emarginatis, obtusis; racemo brevi, terminali, 4—5-floro; bracteis brevibus, ovatis; (floribus maximis;) sepalis oblongis, acutis: lateralibus basi longè productis, petalis duplò latioribus, acutis; labello obovato, dilatato, retuso, cum basi columnæ in calcar obtusum connato.—*Lindl. MSS.*

Dendrobium formosum, *Roxb. Hort. Beng. p.* 63.

Habitat in montibus Napaliæ; in montibus Sillet confinibus, M. R. Smith; in Martabania ad Moalmyne; ad Tavoy oræ Tenasserim, Gul. Gomez; florens et fructiferum tempore calido et pluvioso.

Orchidea magna, rigida, arborum parasitica, dependens. Radix constans fibris copiosis, fasciculatis, cylindricis, lævibus, spongioso-corticatis, fuscescentibus, simplicibus. Caules plures, clavato-cylindrici, digitum crassi, pedales, 2-pedalesque, sublignosi, sulcis pluribus, profundis exarati, totidemque angulis obtusis notati, omninò induti *vaginis* foliorum arctè adpressis, pollicaribus, pilis brevibus, atris, solubilibus obsitis, infimis aphyllis. Folia approximata, alterna, bifariè patentia, interstitiis triplò longiora, oblonga, apice obtusiusculâ hinc retusa et obsoletè bidentata, dentibus obtusissimis, basi obtusa, subamplexantia; coriacea, lævia, lucida, 3-pollicaria, suprà parùm canaliculata, subtùs pallida, parùm puberula, costâ carinatâ. Flores maximi, campanulato-infundibuliformes, limbo patentissimo, 3-pollicari; albi, labello intùs flavo, fragrantes, 4 vel 5 approximati in *racemum* brevem, terminalem, sessilem, subrotundum. Pedunculus teres, carnosus, albus, sesquipollicaris, sursùm leviter ampliatus, lævis, basi suffultus bracteâ ovatâ, concavâ, 3 lineas longâ. Sepala subcoriacea, patentia, oblongo-lanceolata, acuta, sesquipollicaria, plana, dorso subcarinata; *lateralia* basi dilatatâ cum columnæ basi connata in *calcar* magnum, conicum, obtusum, pedunculo dimidiò brevius. Petala rotundato-obovata, acutiuscula, sepala longitudine æquantia sed iisdem duplò latiora, basi parùm attenuata. Labellum petalis parùm majus, obovatum, retusum, deorsùm attenuatum et subinfundibuliforme marginibus rotundato-porrectis, disco nudo, flavo. Columna brevissima, valdè crassa, basi latissimâ producta, anticè plana, stigmate cavo, subterminali, dorso convexo-gibbosa. Anthera terminalis, ovata, posticè adfixa, obtusa, 2-locularis. Massæ pollinis 4, oblongæ, per pares contiguæ. Ovarium breve, obtusè triangulare. Capsula magna, 2-pollicaris, ovata, triangularis, fusca, lævis.

This stately plant was first discovered by the late Mr. M. R. Smith, on the mountains bordering on Sillet, and thence introduced into the Calcutta garden. I have found it on most of the mountains in Nipal, as well as on the plains of Martaban about Moalmyne. One of my plant-collectors, William Gomez, who accompanied me on my journey in the Burma countries, found the plant at Tavoy on the coast of Tenasserim. Neither Mr. Lindley nor myself have been able to discover any difference among these plants. They grow generally in large tufts on trees, sometimes on rocks; their flowers are very large, white, with the lip yellow within, possessing a delightful, though faint perfume.

Plate XXXIX. Fig. 1. Flower. 2. The same dissected. 3. Ripe capsule.

DENDROBIUM DENSIFLORUM. Tab. 40.

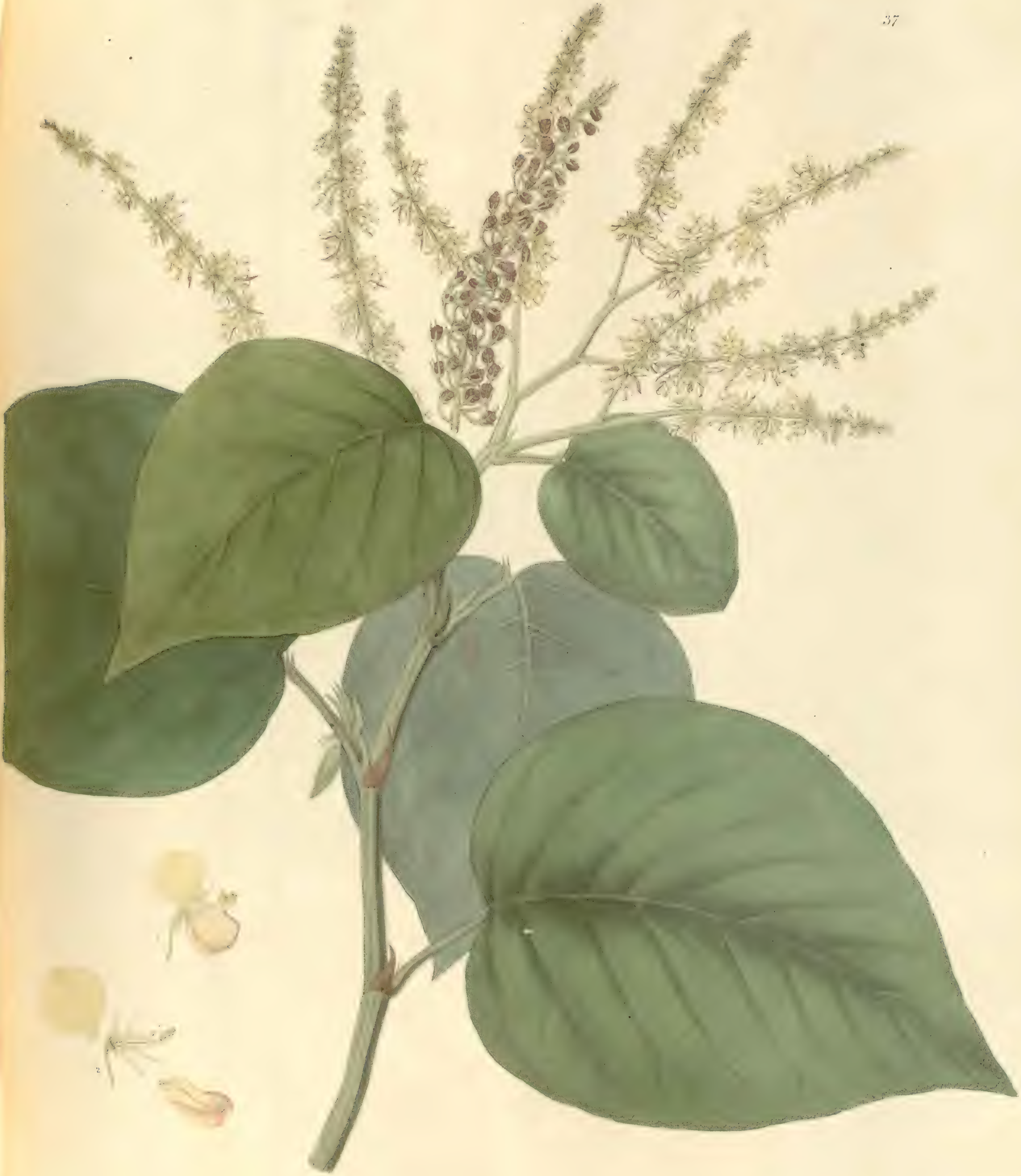
Caulibus articulatis, clavatis, pendulis, ad apicem foliosis; foliis oblongis, acutis, nervosis; racemis lateralibus, multifloris, foliis longioribus: junioribus strobiliformibus; bracteis oblongis, plicatis, recurvis, pedicellis longioribus; sepalis patentissimis, ovatis, obtusis; petalis conformibus, paullò majoribus; labello majusculo, rhomboideo, unguiculato, denticulato, retuso.—*Lindl. MSS.*

Habitat in montibus Napaliæ, frequens. Floret tempore pluvioso.

Planta pendula, lævis, cæspitosa, arborum parasitica, pedalis—2-pedalis. Radix constans fibris numerosis, fasciculatis, teretibus, indivisis. Caules plures, rigidi, cylindraceo-clavati, lucidi, ætate flavicantes, maximâ parte nudi, sulcis aliquot profundis totidemque angulis obtusissimis notati, vestigiis vaginarum remotis annulati, extrorsùm digitum crassi, apice foliosi. Folia valdè approximata, patentia, alterna, ovato-oblonga, acuta, 5-pollicaria, firma, subcarnosa, lucida, plana, nervosa, basi contractâ, obsoletissimè petiolatâ abientia in *vaginas* breves, adpressas, deciduas. Racemus magnus, solitarius, laxè pendulus, versus apicem caulis infra folia lateralis, pedunculatus, 6—8-pollicaris, ovato-oblongus, obtusus, multiflorus; novellus, longè ante expansionem, sessilis, ovatus, strobiliformis, 2-pollicaris, valdè regulariter imbricatus bracteis adpressis, planis, alternantibus. Pedunculus crassus, cylindricus, 2—3-pollicaris, *bracteis* sparsis, oblongis, recurvis, nervosis, membranaceis, ferè pollicaribus, persistentibus. Flores valdè numerosi, majusculi, flavi, approximati, undique sparsi, patentissimi, insidentes *pedicellis* teretibus, pollicaribus, suffultis *bracteâ* magnâ, obovatâ, nervosâ, persistente. Sepala oblonga, obtusa, semipollicaria; *lateralia* parùm majora, basique dilatatâ infra basin columnæ in *calcar* brevissimum, subcylindricum, obtusum connata, uti *petala* ovata, subæquantia, patentissima. Labellum planum, patens, retusum, ciliato-denticulatum, suprà pubescens, basi desinens in unguem brevem, canaliculatum. Columna brevis, conica, crassa, basi leviter producta. Anthera ovata.

This lovely *Orchidea* comes so near to Roxburgh's *Dendrobium clavatum* (Hort. Beng. p. 63.), that I should consider them as identical, if he had not ascribed bulbs to his plant, of which ours is entirely destitute. In the Calcutta garden the two plants maintain that character, although in other respects they are alike. It is possible that under particular circumstances, the bulbs or pseudobulbs may become elongated into clavate stems, and if so the Sillet plant would be the same species with ours from Nipal.

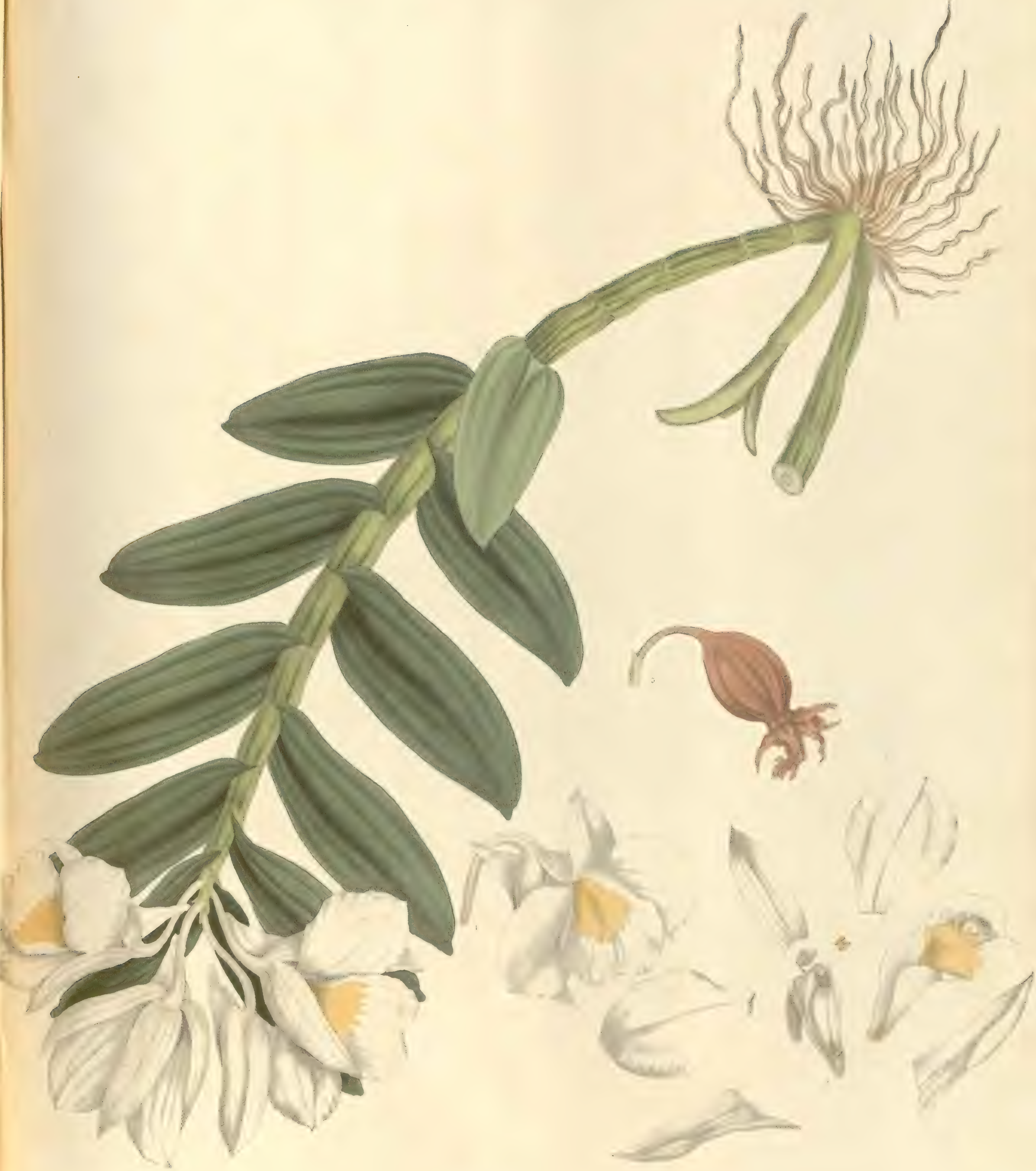
Plate XL. Fig. 1. Flower dissected. 2. Column.



Printed by Engelmann Graf, Coindet & Co

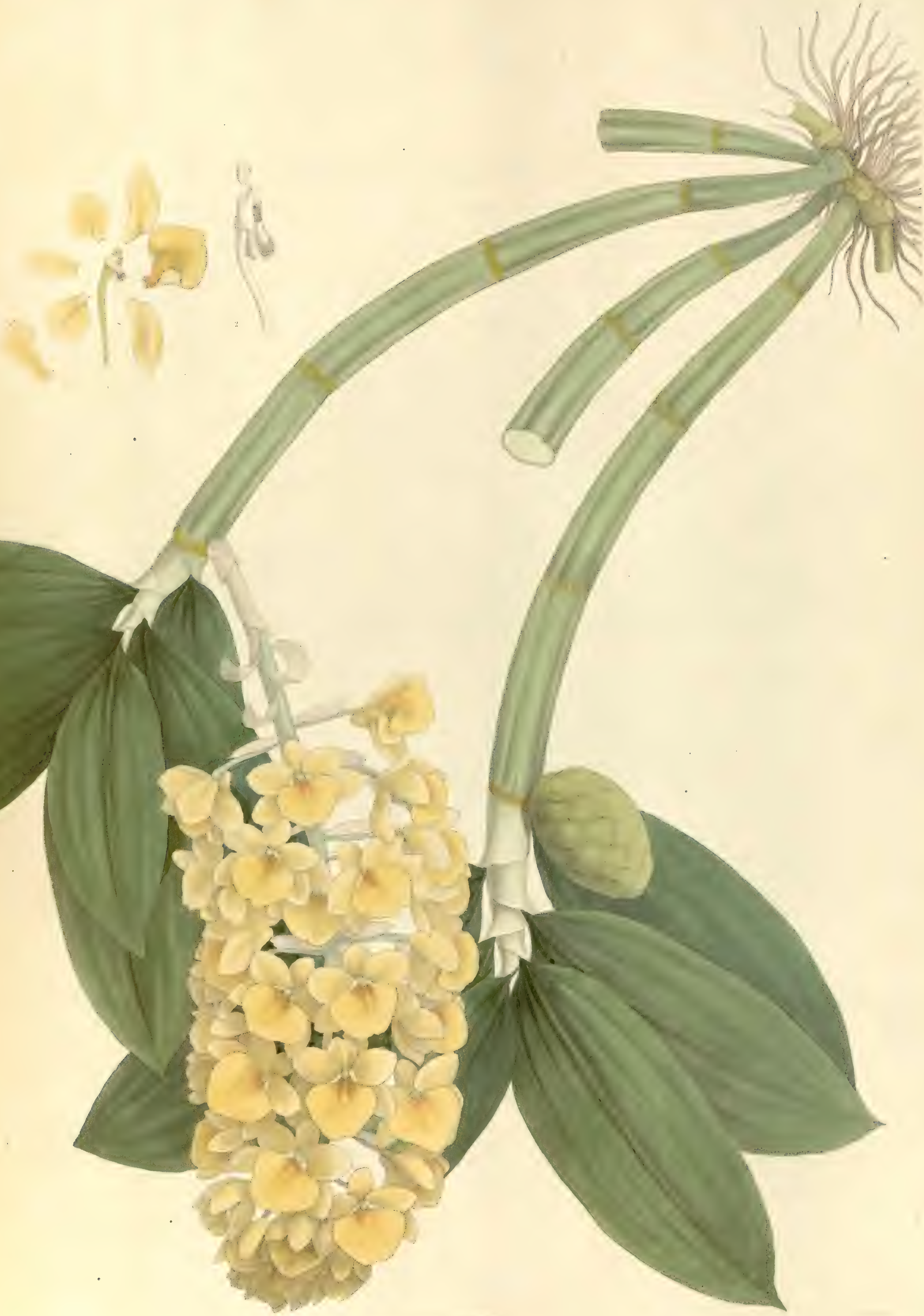
Uraria cordifolia

Cœlogyne Gardneriana



Printed by [illegible]

Dendrobium formosum



Dendrobium densiflorum

ACONITUM FEROX. Tab. 41.

Floribus racemoso-paniculatis, villosis; galeâ semicirculari, anticè acutè porrectâ, deorsùm attenuatâ; cucullorum sacco longo, angusto, calcare inclinato, labio elongato, recurvo; filamentis alatis, subsagittatis, ciliatis, ovariis, capsulis ramisque villosis; foliis quinquepartito-palmatis, subtùs pubescentibus, lobis inciso-pinnatifidis, basi cuneatis, lobulis acutis, divaricatis.

Aconitum ferox, *Wall. apud Seringe Mus. Helvet.* 1. *p.* 160. *t.* 15. *f.* 43, 44. *Decand. Prodr.* 1. 64.

Aconitum virosum, *Don. Prodr. Flor. Nepal. p.* 196.

Habitat in Himalaya ad Gossain Than, *Dom. E. Gardner;* in Sirmore, *G. Govan, M.D.;* in Kamaon, *Robertus Blinkworth.* Ipse legi ad cacumen Sheopore montis in Napalia. Floret sub pluviis, fructicat Octobre, Novembre.

Nomen Sanscriticum: *Visha,* i. e. venenum, et *Ativishā,* i. e. venenum summum, atrox; Hindustanicum: *Vish* vel *Bikh,* (ex auctoritate illustr. Colebrookei); Newarensibus: *Bikh* et *Bikma.*

Radix constans *tuberibus* aliquot (2 vel 3) fasciculatis, fusiformibus, 2—4-pollicaribus, attenuatis, nigricantibus, intùs albidis, subcarnosis, *fibras* sparsas, teretes, ramosas, longiusculas exserentibus. Caulis erectus, cylindricus, fistulosus, basi glaber, obsoletè angulatus, pennam cygneam usquè ad digitum minimum crassus, supernè attenuatus, pedalis, 2—3-pedalisque, (ex observatione *Govanii* usque ad 6-, quin 12-pedalem,) parùm villosus, subsimplex, vel *ramos* emittens paucos, alternos, breves, villosos. Folia remota, patentia, circumscriptione orbiculato-cordata, profundè 5-partita, lobis inciso-pinnatifidis, basi cuneato-attenuatis, lobulis distantibus, oblongis, dentiformibus, acutis; suprà saturatè viridia, glabra, secus tractus vasorum sulcata; subtùs pallida, nervoso-venosa, grossè reticulata, sæpiùs ad vasa pubescentia; inferiora palmaria, longè petiolata; media brevè petiolata; summa sessilia, amplexicaulia; *floralia* valdè parva, trifida, vel integra, pedunculos floriferos æquantia. Petioli graciles, canaliculati, basi dilatati; inferiores spithamæi, parcè pubescentes, folio longiores; medii illo pluriès breviores, villosi. Racemi terminales caulis ramorumque, graciles, attenuati, 6-pollicares; fructiferi elongati; tenuiflori, pube molli, densâ obsiti. Flores magni, cœrulei, extùs *pedunculi*que teretes, pollicares cano-villosi. Galea pollicaris, adscendens, gibboso-semicircularis, anticè in acumen breve porrecta, deorsùm attenuata. Alæ orbiculato-reniformes, galeâ tertiò breviores. Sepala *inferiora* oblonga, acuta, deflexo-patula, semiunguicularia. Petala *superiora cuculliformia* cylindracea, angusta, leviter incurva, calcare vix dilatato, labioque elongato, recurvato obtusis, stipitata ungue lævi, filiformi; *inferiora* nulla. Filamenta capillacea, pilosula, basin versus marginata membranâ tenuissimâ, latiusculâ, ciliatâ, supernè bidentato-sagittatâ; nunc glabrâ, sursùm attenuatâ et edentulâ. Ovaria 5, villosa. Capsulæ oblongæ, villosæ, albicantes, reticulatæ, pollicares. Semina atra, favosa.

This plant varies considerably, according to the situation in which it is found. On Sheopore, at an elevation of about 10,000 feet, (the only place where I have found it in Nipal Proper,) it is a smaller, slenderer and smoother plant, with almost simple stem, narrow segments of the leaves, and thin racemes. As it approaches higher elevations, towards the snowy mountains, it attains a larger size and habit, and is covered with soft, greyish hairs, the divisions of the leaves become broader, the spikes larger, and the flowers more dense and numerous. These various appearances so gradually succeed each other, that I am unable to discover any point on which to form a specific distinction; nor can I even sufficiently limit the varieties to render their enumeration a matter of utility.

There are three other species of *Aconitum* or *Monkshood,* all of them tuberous-rooted, which inhabit the southern side of the Himalaya, and are considered by the natives as strong poisons. Our species, however, exceeds them all in virulence, and is probably the most deleterious vegetable poison of continental India.

On the subject of the Nipal poisons, the late Dr. Hamilton has the following observation in his *Account of the Kingdom of Nepal, p.* 98. "The term *Bish* or *Bikh,* according to the pronunciation of the same letters in the plains and on the mountains, is applied to four different plants with tuberous roots, all in great request. I have already mentioned the *Singgiya Bish,* as found on the lower mountains and hills, and supposed it to be a species of *Smilax.* The others have not the smallest resemblance to it, but are so strongly marked by a resemblance to each other, that I have no doubt of their all belonging to the same genus, although I have only seen the flowers and fruit of one. This is called *Bishma* or *Bikhma,* and seems to me to differ little in botanical characters from the *Caltha* of Europe. The *Bishma* or *Bikhma* is also, I believe, called *Metha,* although I am not certain but that the name may be also given to the following species, which deserves the most serious attention, as the *Bikhma* is used in medicine as a strong bitter, very powerful in the case of fevers, while the plant which will be next mentioned, is one of the most virulent poisons.

"This dreadful root, of which large quantities are annually imported, is equally fatal when taken into the stomach, or applied to wounds, and is in universal use for poisoning arrows; and, there is too much reason to suspect, for the worst of purposes. Its importation would indeed seem to require the attention of the magistrates. The Gorkhalese pretend that it is one of their principal securities against invasion from the low countries; and that they would so infect all the waters on the route by which an enemy was advancing, as to occasion his certain destruction. In case of such an attempt, the invaders ought no doubt to be on their guard; but the country abounds so in springs that might be soon cleared, as to render such a means of defence totally ineffectual, were the enemy aware of the circumstance. This poisonous species is called *Bish* or *Bikh* and *Hadaya Bish* or *Bikh;* nor am I certain whether the *Metha* ought to be referred to it, or to the foregoing kind.

"The *Nirbishi* or *Nirbikhi* is another plant of the same genus, and like the first kind has no deleterious qualities, but is used in medicine. The President of the Asiatic Society, in a note annexed to Dr. Roxburgh's account of the *Zedoary*, gives the *Nirbisha* or *Nirbishi*, as a Sanscrita or Hindwi name of that plant, which has not the smallest resemblance to the *Nirbishi* of the Indian alps. In fact, the nomenclature of the materia medica among the Hindus, as far as I can learn, is miserably defective, and can scarcely fail to be productive of most dangerous mistakes in the practice of medicine. For instance, the man whom I sent to Thibet for plants brought, as the species producing the poison, that which was first brought to me as the *Nirbishi*, or kind used in medicine."

That the roots mentioned above, excepting the *Singgiya*, which Dr. Hamilton thinks is a species of *Smilax*, with ternate leaves and poisonous root and berries, the latter of which, when applied externally, are said to be a cure against the Goitre (*Account of Nepal, p.* 86.), belong to plants of the genus *Aconitum*, is quite certain. His herbarium, at present under my charge, contains specimens of three plants, labelled *Caltha? Bishma*, *C.? Nirbisia*, and *C.? Codoa;* and although they are in a very young state, they afford evidence enough to prove that two of the three species are identical with my *Aconitum ferox*, the third being perhaps a different species. His statement of the belief of the Goorka's, that the *Bikh* would protect them from foreign invasion, and his opinion that such a kind of defence might be easily frustrated, have been fully verified during the late war with Nipal. In the Turraye, or low forest-lands, which skirt the approach to that country, and among the lower range of hills, especially at a place called Hetounra, quantities of the bruised root were thrown into wells and reservoirs, for the purpose of poisoning our men and cattle; the attempt, however, was very soon discovered, and effective precautions taken to prevent the occurrence of any serious mischief. I am informed by Henry Colebrooke, Esq.—the best friend and patron I ever possessed in the world, to whom I am under far greater obligations than to any man living, and whose name it is impossible for me ever to mention without emotions of the warmest gratitude and respect,—that the *Bikh* is employed in the northern parts of Hindustan for destroying tigers. Arrows poisoned with that drug are shot from bows fixed near the tracks leading to their watering-places; and it generally happens that the animal is found dead at the latter. I am unacquainted with the *Bikhma* which Dr. Hamilton speaks of as a strong bitter, and which the late Colonel Kirkpatrick alludes to as a kind of *Gentian*, in his *Account of the Kingdom of Nepaul, p.* 182, (note at the bottom;) and I take this opportunity of bearing witness to the accuracy of the observation of the former author concerning the defectiveness of the nomenclature of the materia medica of the Hindus, which, I must say, extends in an equally lamentable degree to their botanical nomenclature; and this is most especially the case with regard to the natives of Nipal. Not one in twenty of the names of plants which were given to my late friend, while he was in that country, is correct, or has any existence, except in the deceitfulness of the native collectors, whom he was obliged to employ. On this subject I can speak with confidence, having myself visited Nipal twenty years after Dr. Hamilton was there, under far more favourable circumstances than existed in his time, and having during the last twelve years enjoyed uninterrupted facilities for instituting inquiries, partly by my own people, partly through the kindness of my friends at the British Residency at Katmandu.

My friend Mr. Royle has successfully introduced the plant from the Choor mountain, into the botanic garden at Saharunpure, in the north-west of Hindustan, distant about 1100 miles from Calcutta. He informs me that the root is sent down into the plains, and used as a medicine, under the name of *Meetha* or *Tileea;* and that, being previously mixed with other drugs, an oil is distilled from it, which is said to be useful in rheumatism.

I feel highly indebted to Mr. J. Pereira, of the General Dispensary in Aldersgate Street, London, for the subjoined detail of several interesting experiments made with the roots of the *Aconitum ferox*, which I brought with me from Nipal ten years ago. They fully establish the extreme virulence of the poison.

"The experiments which I have made to determine the physiological effects of the root of the *Aconitum ferox*, demonstrate that this substance is a most virulent poison. These experiments were made in the presence of Dr. Falconer, Assistant Surgeon on the Bengal Establishment, and my brother, on rabbits and dogs, and with the root in the form of powder, spirituous extract, and watery extract. Of these preparations the spirituous extract is by far the most powerful. The effects were tried by introducing this extract into the jugular vein, by placing it in the cavity of the peritoneum, by applying it to the cellular tissue of the back, and by introducing it into the stomach. In all these cases, except the last, the effects were very similar: namely, difficulty of breathing, weakness, and subsequently paralysis, which generally commenced in the posterior extremities, vertigoes, convulsions, dilatation of the pupil, and death, apparently from asphyxia.

"The bodies of most of the animals were examined immediately after death. In all the cases the right side of the heart was found distended with dark-coloured blood, and the left empty. In one or two cases the auricles were still contracting, but the ventricles had ceased to contract. The galvanic apparatus produced a quivering in a few of the fibres of the ventricles, and either produced, or very much increased, the contractions of the ventricles. All the voluntary muscles were susceptible of galvanism.

"One grain of the alcoholic extract introduced into the cavity of the peritoneum of a rabbit, began to produce its effects in two minutes; death took place in nine minutes and a half. In a second experiment of a similar kind, the effects commenced in two minutes and a half, and death was produced in eleven minutes. Two grains introduced into the jugular vein of a good-sized, strong dog, produced convulsions in one minute, and death in three minutes. One grain introduced into the cellular tissue of the back of a rabbit, began to affect the system at the end of six minutes, and produced death in fifteen minutes. A rabbit was made to swallow three grains of the extract. No effect was produced, except that the animal continued chewing for several hours as if ruminating, and which arose probably from the local action of the poison on the mouth and throat. The watery is less powerful than the spirituous extract. Two grains of it introduced into the peritoneum of a rabbit did not produce death until the expiration of twenty-seven minutes.

"By referring to the experiments of Professor Orfila in his *General Toxicology*, and of Mr. Brodie in the *Philosophical Transactions*, it will be seen that the symptoms produced by the *Aconitum Napellus* are very similar to those produced by the *Aconitum ferox*. Hence then it is most probable, that both species contain the same active principle: but the *A. ferox* must contain it in much greater quantity, as its effects are so much more powerful. Indeed the alcoholic extract of this root appears to be nearly equal in power to *Strychnine*, *Upas Antiar*, *Upas Tieuté*, and *Woorara* poisons.—That it is equal in power to *Strychnine* I can speak from numerous experiments, which I have made with this latter; but with respect to the activity of the *Upas* and *Woorara* poisons I can only speak from the experiments of Orfila, Brodie and others.

"As my experiments demonstrate, that the activity of the *Aconitum ferox* is in proportion to the absorbing power of the surface to which it is applied, we have, I think, a right to infer, that this poison becomes absorbed; and that it acts on the brain there cannot be the least doubt if we refer to the symptoms.—But we are not justified in assuming, because it becomes absorbed, and produces its effects on the brain, that, therefore, it operates by coming into contact with that viscus. The experiments of Messrs. Morgan and Addison seem to prove that poisons, any how introduced into the blood-vessels, act on the lining membrane of the vessels, and by sympathy affect the brain. That the alcoholic extract of this root acts on the nerves of the part to which it is applied, was proved by placing a minute portion of it on the tongue. Shortly afterwards a peculiar pricking and numbness in the tongue and lips came on, which lasted for several hours. In one experiment, the impression remained for eighteen hours. Once I experienced a peculiar feeling in the throat, as if the velum and uvula were elongated and rested on the dorsum of the tongue. This arose from my taking rather more of the extract than usual. A similar sensation was felt by Drs. Boott and Wallich."

I am indebted to my friend Dr. George Govan for the following interesting details :—

"This plant in all its parts is said to be a virulent poison taken internally by men or other animals. The idea of its effluvia affecting the air, so as to produce deleterious effects upon those exposed to it, is likewise very prevalent among the inhabitants of Bissehur and Gurhwal. Having been myself, as well as all those who accompanied me, repeatedly exposed both during the day and night to its influence, without having ever experienced inconvenience, I should rather be inclined to attribute this belief to the circumstance of the plants always occurring at very high elevations; where, we are informed by the first authority, great inconveniences, similar to those believed to be produced by it, are often felt; viz. giddiness, fainting, somnolency and difficult respiration. The last of these symptoms has been usually attributed to rarefaction of the air, and has been said to occur when the body remained perfectly at rest.

"The plant occupies the highest situations in the forest belt investing the sides of the Himmalaya; and I have never met with it much below where the barometer stood at 19 inches.

"From my own personal experience of the effects above mentioned, and from that of the people who accompanied me in crossing the Himmalaya, by the Role or Pannung Pass in Bissehur, where the barometer stood at about 17 inches, I can assert that, after passing the night at what I should judge the upper limit of perpetual snow, no other inconvenience or difficult respiration was felt, than what was the necessary result of the exertion in ascending, and which ceased whenever the body remained at rest. A degree of sickness and giddiness was experienced upon one occasion, with anxiety in respiration, and several of the servants would willingly have remained behind, to sleep for a short time on the snow; but these circumstances did not take place during the exertion of ascending. Here, however, the plant was not to be found for many miles, and as the situation was much inferior in elevation to that above mentioned (the barometer only having sunk to 19 inches), I could not help attributing the sensations experienced, to the exertion of walking more than ankle deep among snow, for nearly six hours, during which the feet were benumbed, and the head exposed to the very powerful action of the rays of the sun. This was in crossing Manjhee-ke-khanda, between the Tonse and Jumnoutri, in the beginning of October.

"It appears that the root of this plant is imported in very considerable quantity into the plains, where it is sold at the rate of one rupee per Seer (about one shilling the pound), although the sale of it seems to have been prohibited under the native governments, on pains of heavy penalties, except to persons well known, or by authority. It is also used in cases of chronic rheumatism by the native practitioners. The coincidence in opinion respecting its efficacy in such cases between them and Professor Stoerk of Vienna, who applied the extract of the roots of some of the European species to similar purposes, may perhaps add to the evidence respecting its utility. The names of *Meetha Doodhya* and *Meetha Telya* are applied to different preparations of it."

Plate XLI. Fig. 1. Flower dissected. 2. Fruit; one of the capsules detached. 3. Seed. 4. Segment of a root.

RUELLIA GOSSYPINA. Tab. 42.

Fruticosa, erecta, paniculatim ramosa, caule, ramis, foliisque junioribus indutis tomento densissimo, niveo; foliis ovato-cordatis, subcrenulatis, ætate glabriusculis; floribus racemoso-paniculatis; laciniis calycis bracteisque linearibus corollâ dimidiò brevioribus.

Habitat in Napalia inferiore juxta ripam fluminis Rapti. Etiam observavi in monte Charculi in valle Deyra. Floret fine pluviarum.

Frutex erecta, ramosa, 2-pedalis. **Caulis** lignosus, obsoletè quadrangularis, basi digitum minimum crassus, *rami*que numerosi, subdecussatim patentes omninò velati tomento candicante, mollissimo, admodùm denso, ætate deciduo, superficiem linquente griseam, glabriusculam. **Folia** subæqualia, patentia, approximata, ovato-cordata, attenuato-acuminata, minutim crenulata, 5—8-pollicaria, sinu basis levi, nunc obsoleto, lobis brevibus, rotundatis; parallelè et obliquè multinervosa, nervis costâque subtùs elevatis, reticulata; novella cum petiolis niveo-tomentosa, dein villosa, ætate fèrè glabra supràque saturatè viridia; *floralia* parva, lanceolata. **Petioli** teretes, folio triplò breviores, inæquales, demùm glabriusculi. **Flores** axillares, oppositi, subsessiles, cœrulei, paniculam terminalem amplam densamque formantes, suffulti *bracteis* binis oppositis, linearibus, semiuncialibus, calycem subæquantibus cumque hoc villosis. **Laciniæ** *calycis* lineares, subinæquales, leviter patulæ. **Corolla** calyce duplò longior, tubo suprà parùm gibboso, limbo patente in *lobos* diviso 5, rotundatos, obtusos, parvos; fauce intus villosulâ. **Stamina** inclusa. **Stigma** clavatum, acutum.

It is impossible to mistake this elegant plant for any other, on account of the dense, milk-white and soft woolliness with which its stem and branches, as well as the young leaves are covered, to a thickness sometimes of one third of an inch. As the plant advances in age this tomentum falls off in large flakes, leaving the branches naked and of a grey colour. The flowers are much smaller than those of *Ruellia alata*, but very handsome and of a blue colour.

Plate XLII. Fig. 1. Flower with a floral leaf and bracts. 2. Calyx opened. 3. Corolla opened.

CONVOLVULUS ATROPURPUREUS. Tab. 43.

Volubilis, densè pilosus; foliis ovato-cordatis, integerrimis, attenuato-acuminatis, petiolis triplò longioribus; fasciculis axillaribus, paucifloris, pedunculatis, involucratis bracteis maximis, foliaceis, lanceolatis; corollâ campanulatâ, extùs barbatâ.

Convolvulus (Ipomœa) atropurpureus, *Wall. in Roxb. Flor. Ind.* 2. *p.* 54.

Ipomœa sphærocephala, *Don. Prodr. Flor. Nepal. p.* 98. (non *Roxb.*)

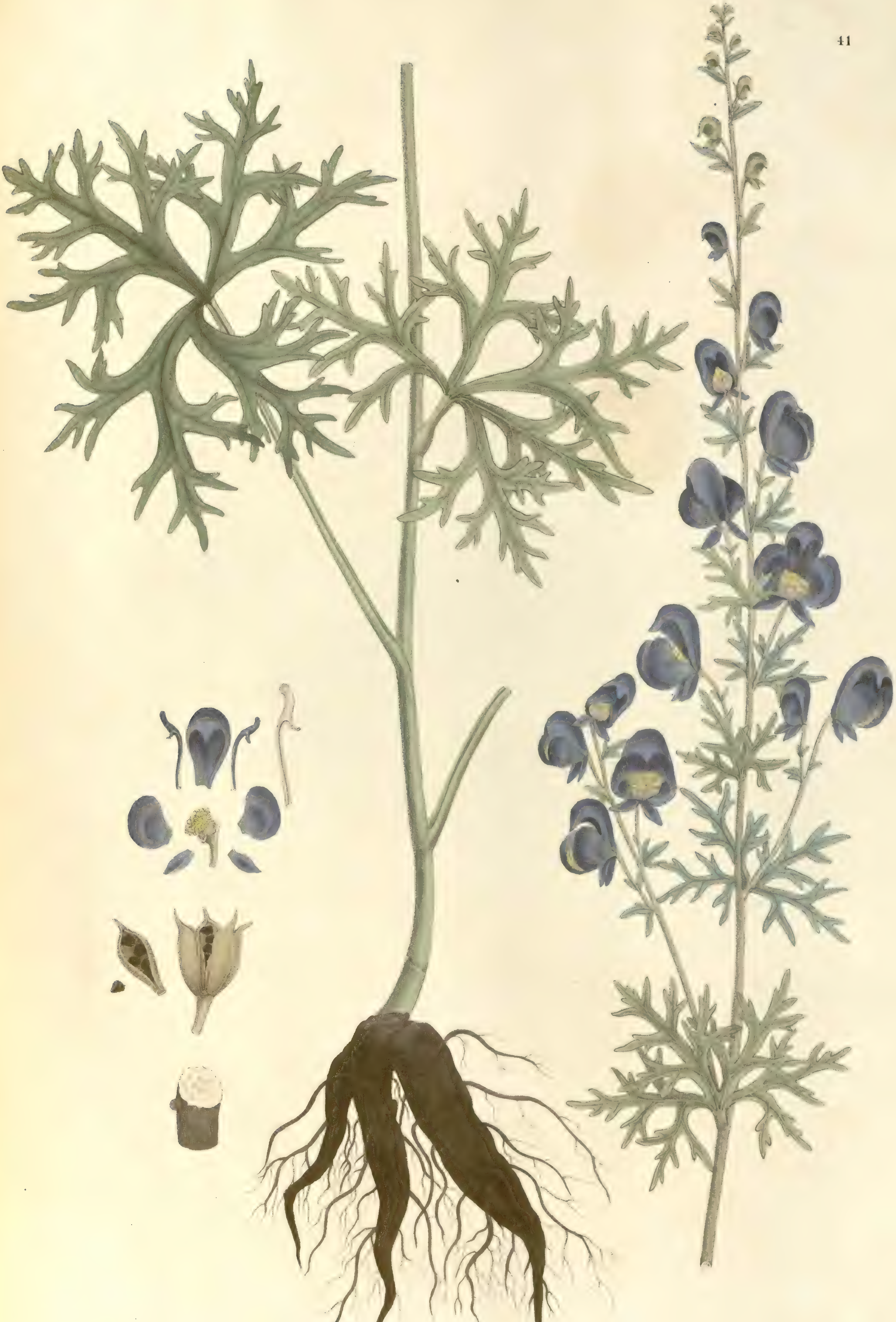
Habitat in montibus Napaliæ, ubi primùm detexit Dom. Edw. Gardner, posteaque ipse copiosè legi. Etiam incolit regiones elevatiores, versus Gossain Than. Floret Junio—Octobre.

Frutex magna, ramosa, latè super arbuscula et frutices volubilis, omnibus partibus vestita pilis copiosis, mollibus, decumbentibus, dilutè ferrugineis. **Caulis** teres, longissimus, pennam scriptoriam crassus, *rami*que pauciores densè pilosi. **Folia** alterna, patentia, subdistantia, oblongo- vel ovato-cordata, indivisa et integerrima, valdè attenuata in acumen longum, gracile, lobis basis rotundatis, nunc inæqualibus, sinu plùs minùs profundo, nunc levissimo, utrinque, præprimis subtùs mollissimè pilosa, ibique sub-7-nervia, transversè reticulato-venosa; membranacea, 5—7-pollicaria; novella sericeo-barbata. **Petiolus** teres, densè pilosus, folio triplò brevior, apice utrinque glandulâ mucosâ, planâ, ovatâ. **Stipulæ** nullæ. **Flores** magni, speciosi, atropurpurei, brevè pedicellati, pauci dispositi in *fasciculis* axillaribus, solitariis, pilosis, involucratis, *pedunculo communi* suffultis cylindrico, petioli dimidium vix attingente. **Bracteæ** magnæ, foliaceæ, lanceolatæ, acuminatæ, basi latiusculâ, subretusâ subadnatæ, ferè 1½-pollicares, interiores breviores. **Calyx** bracteis occultus, iisdemque parùm brevior, constans *sepalis* 5 lanceolatis, acuminatis, submembranaceis, inæqualibus. **Corolla** campanulata, calyce ferè duplò longior, extùs pilosa; *limbo* patente, 5-lobo, lobis rotundatis. **Stamina** inclusa; *filamenta* subulata, basi villosa; *antheræ* lineares. **Ovarium** ovatum, læve, disco angusto, flavido basi circumdatum. **Stylus** glaber, capillaris. **Stigmata** 2 globosa.

This beautiful Convolvulus was first sent to me from Nipal by the Hon. E. Gardner. When I visited that country in 1820 and 1821 I found the plant in abundance on the hills surrounding the great valley. My people brought me likewise specimens from still more northern and elevated situations in the direction of Gassain Than. It is a very large shrub, and I am scarcely acquainted with any species, which would be more desirable as an ornament either to a garden or to a hothouse.

From *C. sphærocephalus* Roxb., with which Mr. Don has united it in his work, quoted above, it is in every respect different, as may be seen on reference to the second volume of *Flora Indica, p.* 53 & 54, where both these plants have been fully described.

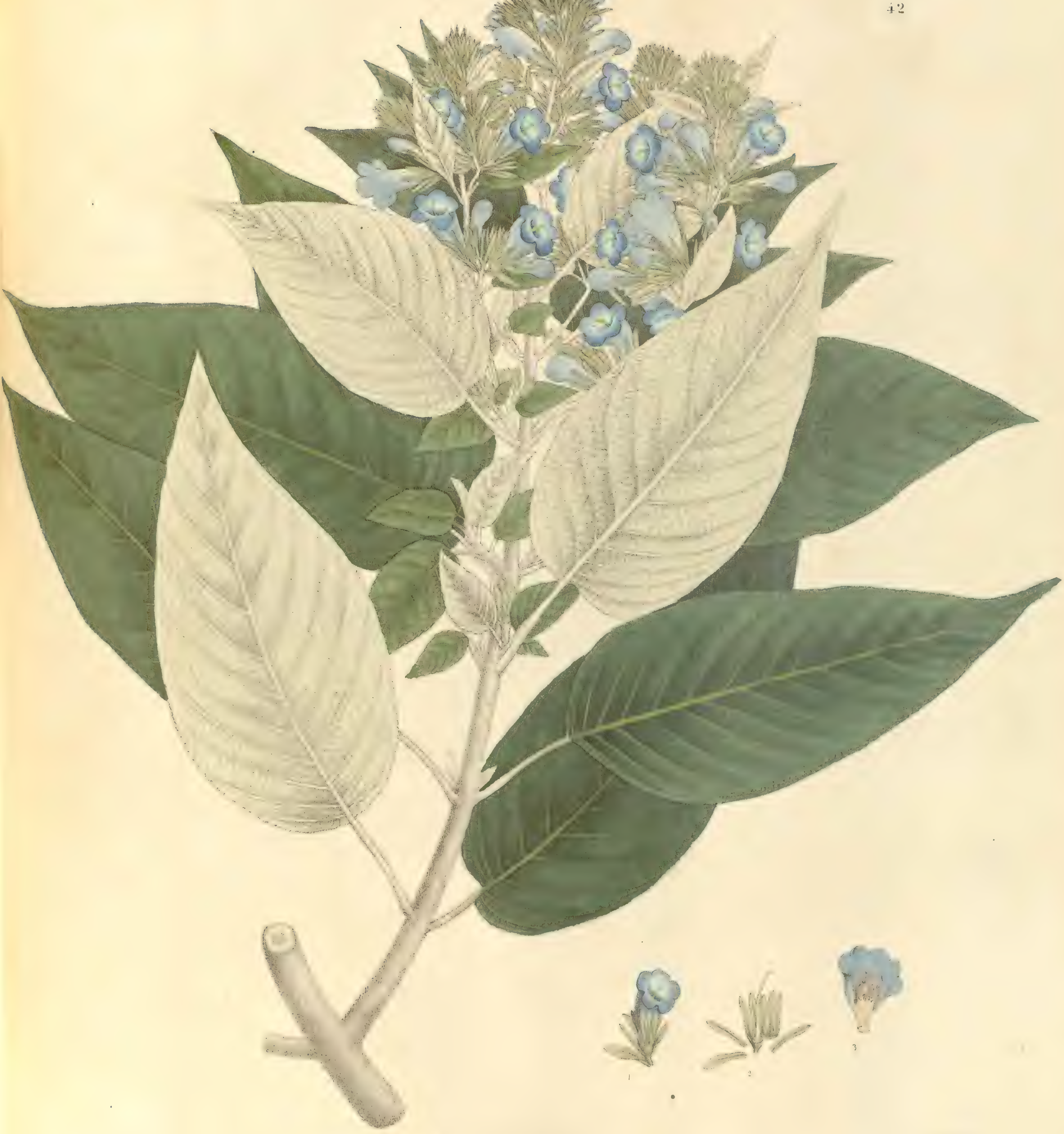
Plate XLIII. Fig. 1. 2. Flowers. 3. Corolla opened. 4. Pistillum. 5. Ovarium.



Printed by Engelmann, Graf, Coindet & Co

M. Gauci lith.

Aconitum ferox

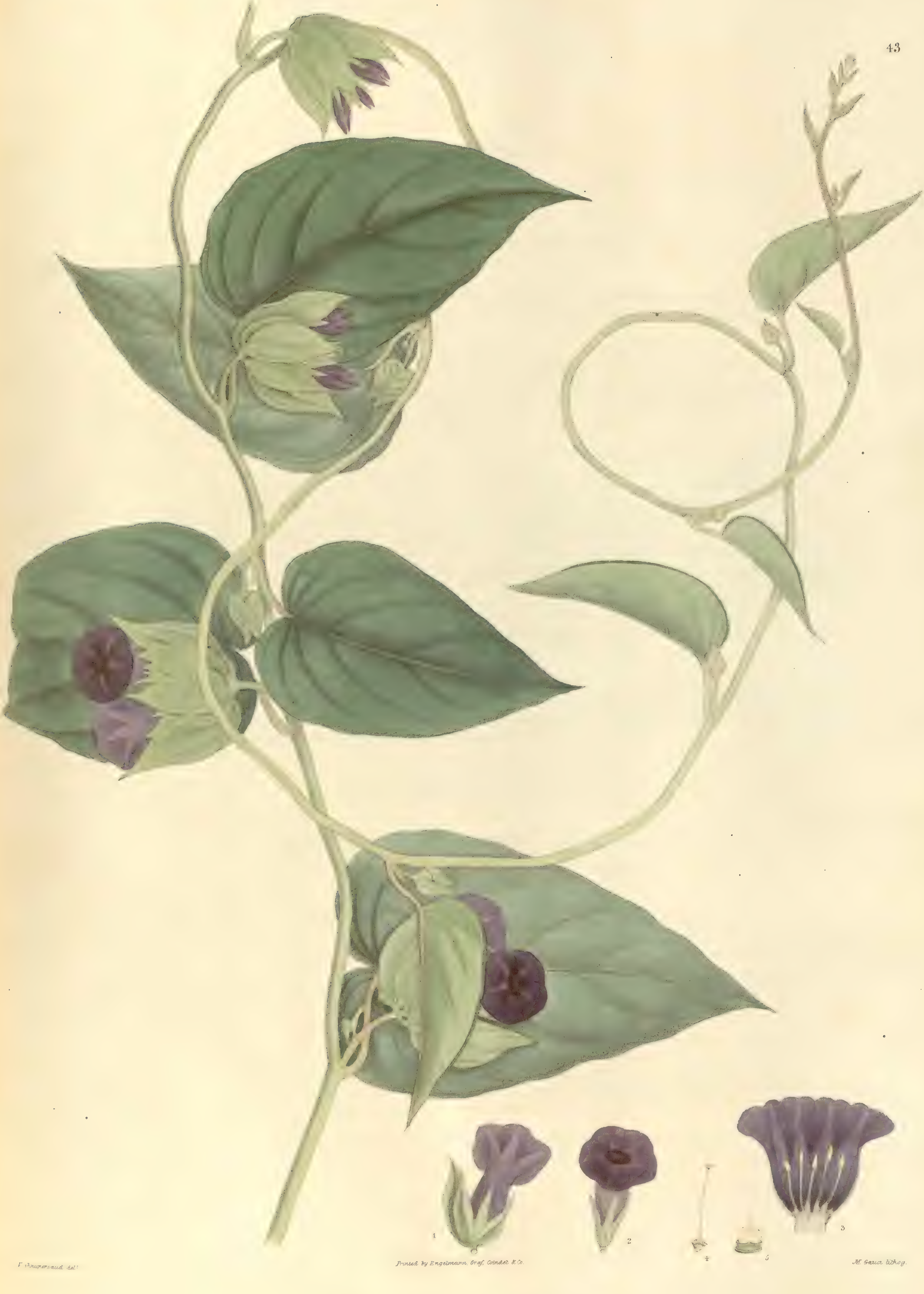


[illegible]

Printed by Engelmann Graf Coindet & Co

M. Gauci lithog

Ruellia goſsypina



V. Vishnupersaud del:

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lithog.

Cónvolvulus atropurpureus

ABELMOSCHUS.

Calyx 5-dentatus, spathaceus, deciduus, cinctus *involucro* (*calyce exteriore*) 5—10-partito. Stigmata 5. Capsula 5-locularis, valvis mediò septiferis, polysperma. Semina calva.—*Brown MSS.*

Abelmoschus, *Medic. Malvac. p.* 45.—*Mœnch. Method. p.* 616.

Hibisci species, *Linn.*—Sectio Hibisci III, *Manihot*; et VI, *Abelmoschi* aliquot species, *Decand.*

Classis Linnæana, *Monadelphia polyandria.*

Ordo naturalis, *Malvaceæ*, Brown.

Habitus *Hibisci.* Nomen *Bamiæ* olim in Herbario Banksiano a celeb. R. Brown adhibitum, a nomine arabico plantis hujus generis, nempè *Hibisco esculento*, *præcoci*, et *ficulneo* Linn. dato. Conf. *Forsk. Flor. Ægypt. p.* 125.

ABELMOSCHUS CRINITUS. Tab. 44.[*]

Setoso-hispidus; foliis subrotundo-cordatis, acuminatis, dentatis, obtusè 5-angularibus; summis sagittatis; racemo paucifloro; involucro 12-partito, laciniis stipulisque lineari-filiformibus.

Habitat in montibus ad Prome, florens Septembre et Octobre.

Planta erecta, herbacea, parcè ramosa, 3-pedalis, omnibus partibus obtecta setis longis, fulgentibus, patulis, solubilibus, pungentibus, pilis brevibus mollibus intermixtis. Caulis cylindricus, basi digitum minimum crassus, supernè *rami*que parùm flexuosi. Folia subrotundo-cordata, acuminata, latè et obtusè dentata, 5-angulata, angulis obtusis, infimis nunc obsoletis; sinu basis profundissimo, lobis rotundato-ovatis, conniventibus; 5—7-nervia, utrinque pilosa; *inferiora* distantia, longissimè petiolata, palmaria; *superiora* aliquandò ovato-cordata et obsoletissimè angulata, petiolo duplò longiora: *summa* sagittato-oblonga, attenuato-acuminata, versus basin sinuata. Petioli cylindrici, hirsutissimi; *inferiores* pedales, folio duplò longiores; superiores eodem duplò triplòve breviores. Stipulæ angusto-lineares, subsetaceæ, pollicares, hirsutæ, deciduæ. Flores magni, speciosi, flavi, pauci, dispositi in *racemum* terminalem brevem, suffulti *pedunculis* crassiusculis, pollicaribus, involucro calyceque hispidissimis. Bracteæ 2 ad basin pedunculi, longitudine eum æquantes, stipulis simillimæ, tardiùs deciduæ. Involucrum usque ad basin ferè partitum in *lacinias* 12, setaceo-lineares, sesquipollicares, incurvas, apice conniventes, ciliato-hispidissimas. Calyx membranaceus, ovatus, spathaceus, apice acutiusculâ obsoletè 5-dentatus, hinc longitudinaliter fissus, involucro parùm brevior, deciduus. Corolla levissimè infundibuliformis, *limbo* plano-patentissimo, diametrum 4-pollicarem ferè emetiente, diviso in lobos 5 obovatos, obtusissimos, venosos; fundo atro-sanguineo. Antheræ albidæ, numerosæ, per totam longitudinem ferè cylindri filamentorum salvâ ejus basi sparsæ. Stigmata clavata, velutina, purpurea.

This species approaches to *Hibiscus racemosus*, *Lindl. in Bot. Reg. vol.* 9. *n.* 917, which is *H. cancellatus*, *Roxb. MSS.* (not of Linnæus, that being a species of *Pavonia*), but differs in being less hairy, in the lobes of the leaves being obtuse, and the racemes shorter and with fewer flowers. In stature it is somewhat smaller than that plant, but the flowers of both are exceedingly alike, and very beautiful.

CENTRANTHERA HISPIDA. Tab. 45.

Erecta, cano-hispida; foliis linearibus, subintegerrimis, calycibus ovatis, acutis, ventricosis.

Centranthera hispida, *Brown Prodr. Flor. Nov. Holl.* 1. *p.* 438.

Digitalis stricta, *Roxb. Hort. Beng. p.* 45.

Capraria rigida, *Hamilt. MSS. et Herb.*

Centranthera nepalensis, *Don. Prodr. Flor. Nepal. p.* 88.

Carosinam, *Rheed. Mal. vol.* 9. *p.* 133. *t.* 78? (*ex Hamilt.*)

Frequens per totam Hindustaniam et in Napalia et Kamaon, ad loca inundata, depressa, florens mensibus Junio—Augusto; fructigera Decembre et Januario. Etiam observavi ad ripam Irawaddi inter Prome et Avam. In Coromandelia et Malabaria colligerunt Dom. R. Wight et b. Klein; ad littora Novæ Hollandiæ, illustr. R. Brown.

Planta rigida, erecta, decussatim ramosa, staturâ admodùm varians; nunc palmaris, e basi usque ramosa, nunc caulescens pedalis, quin 2-pedalis, stricta, omnibus partibus aspera pilis canis, patulis, copiosis, brevibus. Radix sublignosa, fibroso-ramosa. Caulis *rami*que simplices, hispidi, obtusè 4-angulares. Folia opposita, sessilia, erecto-patentia, vel subrecurva, linearia, interstitia subæquantia, pollicaria, 2-pollicaria, obtusa, marginibus subrevolutis obsoletè et remotè denticulata, utrinque hispida et scabra, subtùs subargentea, costâ elevatâ, nervis inconspicuis; *floralia* multò breviora, alterna; *summa* bracteæformia, floribus breviora. Flores majusculi, purpurei, solitarii,

---

[*] The reader is requested to alter the name *Bamia* in this plate for *Abelmoschus.* A similar correction should also be made in Nos. 1915 to 1927 of my *Catalogue of Indian Plants.*

oppositi, axillares, sessiles, pollicares, superiores alterni; suffulti *bracteolis* 2-linearibus, calyce brevioribus. Calyx ventricoso-ovatus, obsoletè 4-angularis, angulis subdenticulato-scabris, hispidus, dorso gibbosus, fauce parùm contractâ, obliquâ suprà 2-dentatus, subtùs fissus, demùmque irregulariter per totam ferè longitudinem disrumpens, quasi 2-partitus; fructus paullò ampliatus. Corolla infundibuliformis, extùs pilosula, *tubo* parùm incurvo, calyce bis longiore, subtùs planiusculo; *limbo* patente, diviso in *lobos* 5 subrotundos, subinæquales, crenulatos. Stamina inclusa; *filamenta* pilosa; *antheræ* pallidæ, subsagittatæ, lobis inæqualibus, supernè ad apicem filamenti contiguis, deorsùm divaricatis, superiore calcarato. Ovarium rotundatum, læve. Stylus filiformis, caducus. Stigma complanatum, lanceolatum, acutum. Capsula ovata, fusca, lævis, magnitudine pisi, calyce obtectus, 2-locularis, 2-valvis, secus suturas submarginulata; *valvulæ* subseptiferæ, apice 2-denticulatæ; *placenta* convexa, demùm libera, a vestigio septi angustissimi marginata. Semina valdè copiosa, locula omninò replentia, subulata, testâ laxâ, dilutissimè ferrugineâ, reticulato-striatâ obtecta; plurima abortiva.

Mr. Brown, in his matchless work quoted above, alludes to the plant I have described, with a doubt as to its being specifically different from that of New Holland. I should not have presumed to decide upon a point, respecting which such a botanist hesitates, had I not by his kindness been indulged with the means of carefully comparing the specimens in the Banksian Herbarium with those from the East Indies; and had it not been found safer to consider them as one and the same plant, than, by endeavouring to separate them, to form a precedent for establishing the various changeable appearances of the Indian plant into so many separate species.

It is a very common plant throughout Hindustan, delighting in wet and rich situations, and producing its neat blossoms during the rainy season. I have also found it on the banks of the Irawaddi. It varies exceedingly, according to the soil and elevation of the place of its growth; being sometimes scarcely a span high, with an undivided slender stem, or producing branches from the very base; but more frequently growing to an upright, rigid plant, from one to two feet high, and harsh with short, stiff, and whitish hairs. The two following plants may perhaps be found to constitute different species.

C. humifusa, caule nano, ramoso, humifuso; foliis linearibus calycibusque parcè pilosis.—*Capraria humifusa*, Hamilt. MSS.

Hab. in Nathpur; *Herb. Hamilt.*

C. Brunoniana, molliusculè pilosula, erecta; foliis lanceolatis, remotè dentatis, obtusis; calyce oblongo, acuminato.

Hab. in Martabania prope Moalmyne.

Plate XLV. Fig. 1. Flower. 2. Calyx opened. 3. Corolla opened. 4. Stamens.

QUERCUS SPICATA. Tab. 46.

Foliis elliptico-lanceolatis, integerrimis, attenuato-acuminatis, basi acutis, nunc obtusis, lævibus; amentis gracilibus, erectis, axillaribus, solitariis, terminalibusque fasciculatis; fructibus fasciculatis, longissimè spicatis, nucibus subglobosis, apiculatis, lævibus, cupulas abbreviatas, lamellosas, villosas longè superantibus.

Quercus spicata, *Hamilt. apud Smith, in Cycloped. Reesiana, in loco.*

Quercus squamata, *Roxb. Hort. Beng. p.* 68.

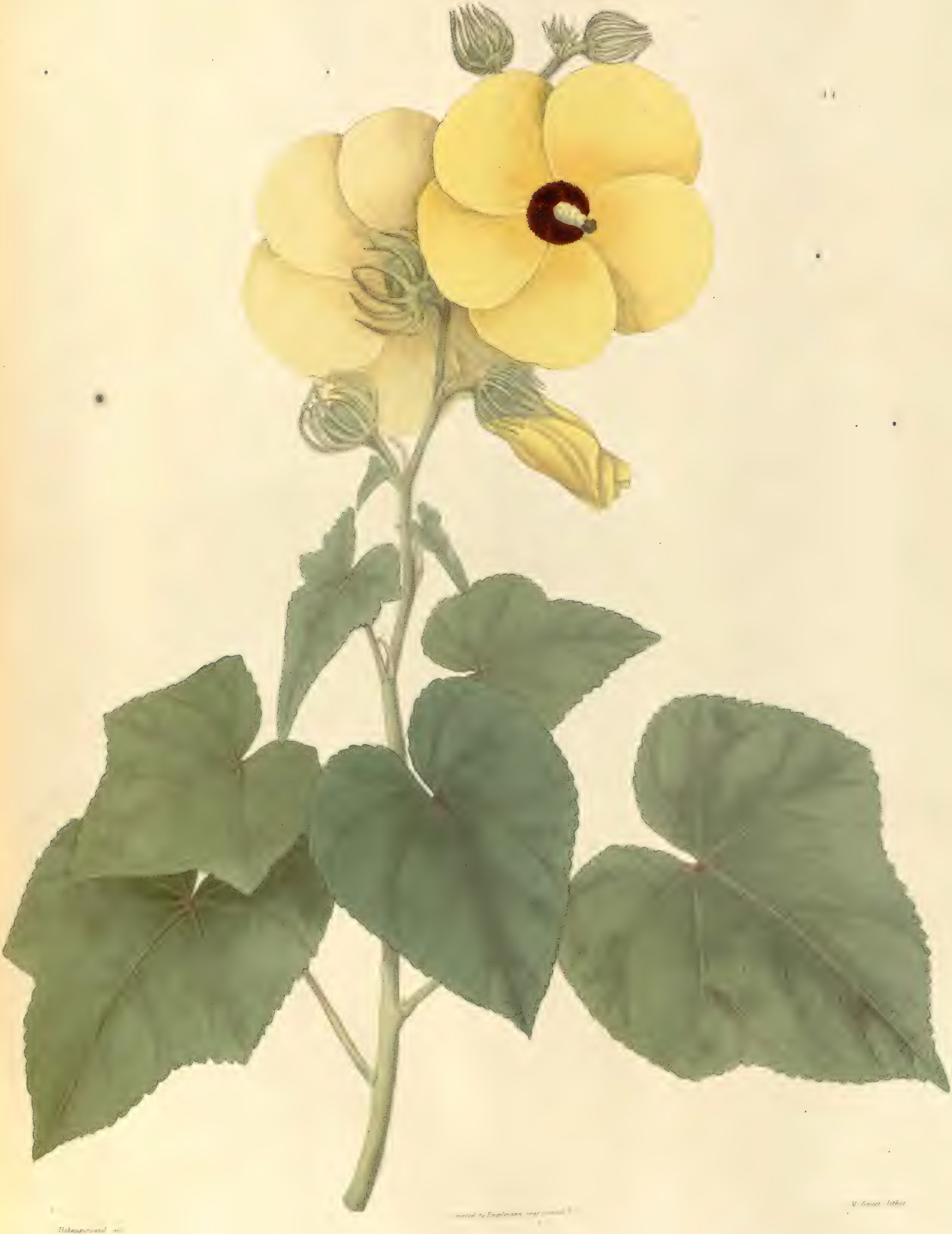
Habitat in montibus Sillet confinibus, ubi detexit *M. R. Smith.* Frequens in sylvis Napaliæ. In Kamaon, *Blinkworth.* Floret mensibus Martio et Aprili; fructus maturi Octobre.

Nomen Newarrense: *Dundwa Singali* et *Phaco Singhali;* Parbutteum: *Arcaula;* Khasianum *Burra Chukma.*

Arbor maxima, procera, ramosa et umbrosa, trunco vasto, induto cortice ramoso, nigricante. Ramuli cylindracei, glauci, puberuli. Folia patentia, sparsa, approximata, elliptica, lanceolata, nunc subobovata, 6—12-pollicaria, quin ultrà, attenuato-acuminata, vel acuta, integerrima, basi acuta, aliquandò obtusa, nunc subretusa et quasi auriculata, lobis brevibus rotundatis; lævia, coriacea, suprà lucida, interdum bullata, subtùs glaucescentia, nervis gracilibus, obliquis, parallelis. Petioli suprà sulcati, basi parùm intumescentes, pollicares 1½-pollicares, aliquandò brevissimi. Stipulæ lineares, acuminatæ, semi-unguiculares, valdè deciduæ. Amenta gracilia, cylindrica, canotomentosa, subsessilia, erecta, foliis plerùmque breviora, axillaria solitaria et terminalia fasciculata, subpaniculata. Mascula valdè numerosa, basi interdùm composita, constantia fasciculis florum subglobosis, copiosis, sparsis, approximatis, bracteolâ suffultis lineari, subreflexâ. Squamæ in singulo flore 8 v. 10 ovatæ, obtusæ, ciliatæ, extùs tomentosæ. Stamina 10, squamis longiora; *filamenta* capillacea, glabra; antheræ fuscescentes, ovatæ; rudimentum ovarii centrale. *Amenta fœminea* in distincta arbore, rariùs masculis intermixta, iisdem graciliora, fasciculis remotioribus, minoribus. Fructus valdè numerosi, 3—4 collecti in fasciculos approximatos, subsessiles, digestos in *spicam* rectam, longissimam, 10-pollicarem, pedalem, imò sesquipedalem, cylindricam, diametrum 3-pollicarem emetientem. Nux globosa, vel subovata, apiculâ cano-tomentosâ terminata, fusca, furfuracea, demùm lucida, magnitudine nucis avellanæ, nunc eâdem duplò major, insidens *cupulæ* brevi, tomentosæ, acutè marginatæ, squamis parvis, obtusis, confluentibus extùs imbricatæ.

This is one of the largest as well as the commonest sort of oak in Nipal, where it attains the most gigantic size. The wood is exceedingly like the English oak in colour, and most probably equals it in other respects, but the moun-

11



Vishnupersaud del.

Printed by Engelmann Graf

W. Gauci lithog

Bamia crinita

Centranthera hispida

G. Rochard ad.

Printed by Engelmann, Graf, Coindet & Co

M. Gauci lithog

Vishnupersaud del^t

Printed by Engelmann Graf Coindet & Co

[illegible] lithog

Quercus spicata.

taineers do not esteem it much, owing, as they say, to its speedy decay; a circumstance owing no doubt to their employing it in its green state. A similar prejudice prevails in that country against the other species. I am unable to distinguish it from Dr. Roxburgh's *Quercus squamata*, which is a native of the mountains bordering on the district of Sillet. By an oversight an erroneous representation of the male flowers has been copied on the plate.

MUCUNA MACROCARPA. Tab. 47.

FRUTICOSA, foliis parcè pilosis; floribus maximis, racemosis, carinâ alis longiore, discolore; leguminibus longissimis, ensiformibus, torulosis, tomentosis, polyspermis.

Habitat in montibus Napaliæ, sed rariùs. Floret Aprili, fructus maturos profert Augusto.

FRUTEX maxima, ramosa, latè volubilis, *caule* digitum ad brachium ferè crasso, induto *cortice* ramoso, fuscescente. RAMI longissimi, teretes, villis ferrugineis densè obsiti, pilis solubilibus, numerosis intermixtis; novelli unà cùm foliis recentibus sericeo-villosi. FOLIA distantia, alterna, patentia, magna, longè petiolata, ternata. FOLIOLA 5-pollicaria et ultrà, acuminata, integerrima, magnitudine æqualia, membranacea, utrinque adpressè pilosa, ætate glabriora; *lateralia* semicordata, basi hinc valdè gibbosa; *intermedium* longiùs petiolatum, lato-ovatum, subrhomboideum, basi acutum. PETIOLUS cylindricus, foliolis parùm longior, basi valdè tumidus; *partiales* unguiculares, pilosi. STIPULÆ parvæ, lanceolatæ, acutæ, deciduæ. FLORES maximi, 2—2½-pollicares, inodori, speciosi, versicolores; vexillo nempè viridi, alis purpureis, carinâ fuscâ; numerosi et approximati, dispositi in *racemos* semipedales ad pedales, laterales ramorum vetustiorum, scilicet ex axillis foliorum delapsorum, solitarios vel geminatos, laxè pendulos, ovatos vel oblongos, obtusos. PEDUNCULUS *communis* crassus, carnosus, cylindricus, *partiales*que teretes, pollicares, pilosi. CALYX amplus, ovatus, basi latâ, subretusâ hinc gibbosâ, unguem longus, ore subbilabiato; *labio superiore* 3-dentato, dentibus lato-ovatis, acutis, intermedio majore; *inferiore* subtruncato, obsoletè 2-dentato. COROLLA calyce quadruplò longior, *petalis* brevissimè unguiculatis, extùs pilosis. VEXILLUM latissimè ovatum, obtusissimum, ventricoso-gibbosum, subreflexum, sesquipollicare, viride, basi parùm contractâ, bidentatâ, ungue incurvo, canaliculato. ALÆ oblongæ, obtusæ, carinæ parallelæ et adpressæ, eâdemque paullò breviores, purpureæ, apicem versus convexæ. CARINA oblonga, dilutè ferruginea, monophylla, apice attenuato-acutâ et porrectâ, dorsoque gibboso bifida. FILAMENTA diadelpha, carinam ferè æquantia. ANTHERÆ pilosulæ, ovatæ; alternæ majores, elevatiores, subsagittatæ. OVARIUM pilosum. LEGUMEN 6—18-pollicare, pollices 2 latum, ensiforme, acutum, complanatum, torulosum, 5—10-spermum, fusco-villosum, minutim rugosum, dorso planiusculo 3-carinatum, intùs læve, septis angustis, obliquis, coriaceis. SEMINA magna, fusca, plana, suborbiculata, hilo longissimo per duas tertias ambitus partem circumdata, *funiculo*que maximo, spongioso appensa.

This superb climber approaches closely to *Mucuna gigantea* Decand., but differs in the size of its flowers and fruit, as well as in other respects. It is furnished to a less degree than most of the other species belonging to the genus, with those long and easily separable hairs, which on the slightest touch enter the skin, and cause an intolerable burning. The flowers, especially the calyces, are in this respect the most offensive parts; but this is abundantly counterbalanced by their size and beauty.

Plate XLVII. Fig. 1. Flower. 2. The same dissected. 3. Pod.

SPHÆROPTERIS.

INVOLUCRA dorsalia, e medio venulæ orta, pedicellata, sphærica, clausa, verticaliter dehiscentia, bivalvia. CAPSULÆ pedicellatæ, receptaculo communi convexo insidentes.—*Brown MSS.*

Sphæropteris, *Wall. in Herb. Societ. Mercator. Ind. Orient.* 1823. (haud *Bernhardi*, quæ *Cyatheæ* spec.)

Peranema, *Don. Prodr. Flor. Nepal. p.* 12. (haud *Peronema* Jack).

Classis Linnæana, *Cryptogamia Filices.*

Ordo naturalis, *Filices Polypodiaceæ*, Brown.

Habitus *Aspidii*, caudice nullo, frondibus decompositis, venulis subtùs glandulosis, stipite rachique paleaceis.—Genus nimis forsan affine *Diacalpi*, Blume Enum. Plant. Javan. p. 241, (fide speciminis Javanici a Domino Horsfield anno 1818 communicati,) quæ similis habitu, venulis glandulosis, medio soriferis, involucro sphærico, clauso, reticulato, areolis subrotundis, parietibus moniliformibus nodulosisve; diversa involucro sessili, laceratim dehiscente, capsulis vix pedicellatis, et receptaculo obsoletiori insidentibus. Hoc ultimo charactere et reticulatione involucri a *Cyatheis* nonnullis (involucro e medio venæ orto) præsertim distinguenda; arctiore tamen affinitate nexa cum *Woodsia*, mediante specie mexicanâ (*W. mexicana* Nob.) quæ, ni fallor, *Physematium molle*, Kaulf. in Regensb. Bot. Zeyt. 1829. 1. Band, p. 341, cui cel. auctor attribuit involucrum "circumcirca clausum" quod verò in nostra planta apice divisum est, lobis subciliatis, arctè conniventibus.—*Brown MSS.*

SPHÆROPTERIS BARBATA. Tab. 48.

Sphæropteris barbata, *Wall. loc. cit.*
Peranema cyathoides, *Don. loc. cit.*
Habitat in montibus altissimis Napaliæ Sheopore et Chandaghiri, vigens tempore anni frigido, Novembre—Januario.

Filix erecta, 2—3-pedalis, lætè viridis. **Radix** ramosa, fibrosa. **Stipes** pedalis, pennam anserinam crassus, hinc convexus, indè exaratus sulco angusto, rachesque densè obsiti *paleis* lanceolatis, acuminatis, reticulatis, integerrimis, majusculis, dilutè ferrugineis, persistentibus, in novello stipite unguicularibus. **Frons** patens, lato-ovata, acuminata, membranacea, tripinnata. **Pinnæ** patentissimæ, approximatæ, sessiles, oblongæ, attenuatæ, pectinato-acuminatæ, inferiores suboppositæ, 10-pollicares. **Pinnulæ** numerosæ, approximatæ, alternæ, sessiles, oblongæ, obtusæ, 2-pollicares, suprà secus vasa munitæ pilis brevibus, hyalinis, subulatis, incurvis, moniliformi-subarticulatis; pinnatæ, apice simpliciter serratæ. **Laciniæ** oblongæ, obliquè obtusæ, vel subtruncatæ, simpliciter venulosæ, venis subtùs præditis corpusculis minutissimis, globosis, vel oblongis, stipitatis, glandulæformibus; inferiores unguiculares, oppositæ, dentato-pinnatifidæ, subfalcatæ; exteriores integerrimæ, sensim confluentes. **Raches** partiales graciles, ferè exsulcæ, paleaceo-subvillosæ. **Sori** in aversa frondis pagina, ad basin laciniarum solitarii, nunc 2 vel 3, exactè globulares, magnitudine ferè seminis coriandri, basi foveolâ notati, suffulti *pedicello* tereti, filiformi, diametrum ipsorum longitudine æquante, venulæ lateraliter, i. e. aliquâ a basi apiceque ejusdem distantiâ inserto. **Involucrum** integrum, clausum, sorum omninò involvens, farctum, coriaceum, dilutè ferrugineum, ætate fuscum, elegantissimè reticulatum, maturitate verticaliter disrumpens in *valvulas* 2, ferè æquales, hemisphæricas, demùm reflexas et subexplanatas. **Capsulæ** densissimæ, ovatæ, parùm complanatæ, deorsùm acutæ, annulo crassiusculo, articulato circumdatæ, pallidè ferrugineæ, longiusculè et capillaceo-pedicellatæ, in fundo involucri insertæ *receptaculo* convexo, ferè capitato, majusculo. **Semina** subglobosa, grandiuscula.

The accurate figure drawn by Mr. Curtis, and the masterly dissections executed ten years ago, at the request of Mr. Brown, by Mr. Francis Bauer, exhibit this interesting fern with such fidelity and truth, that all further illustration on my part is wholly unnecessary. To the latter gentleman, who unquestionably holds the first rank among the botanical painters of this age, I beg to offer my best thanks for his valuable addition to my work: and to Mr. Brown, who has favoured me with the generic character and observation on the fern, I have again to express my deep obligation. The plant is one of the rarer productions of Nipal. I have only found it on the summit of two of the highest mountains near the great valley of that country, and have never received it from any other place.

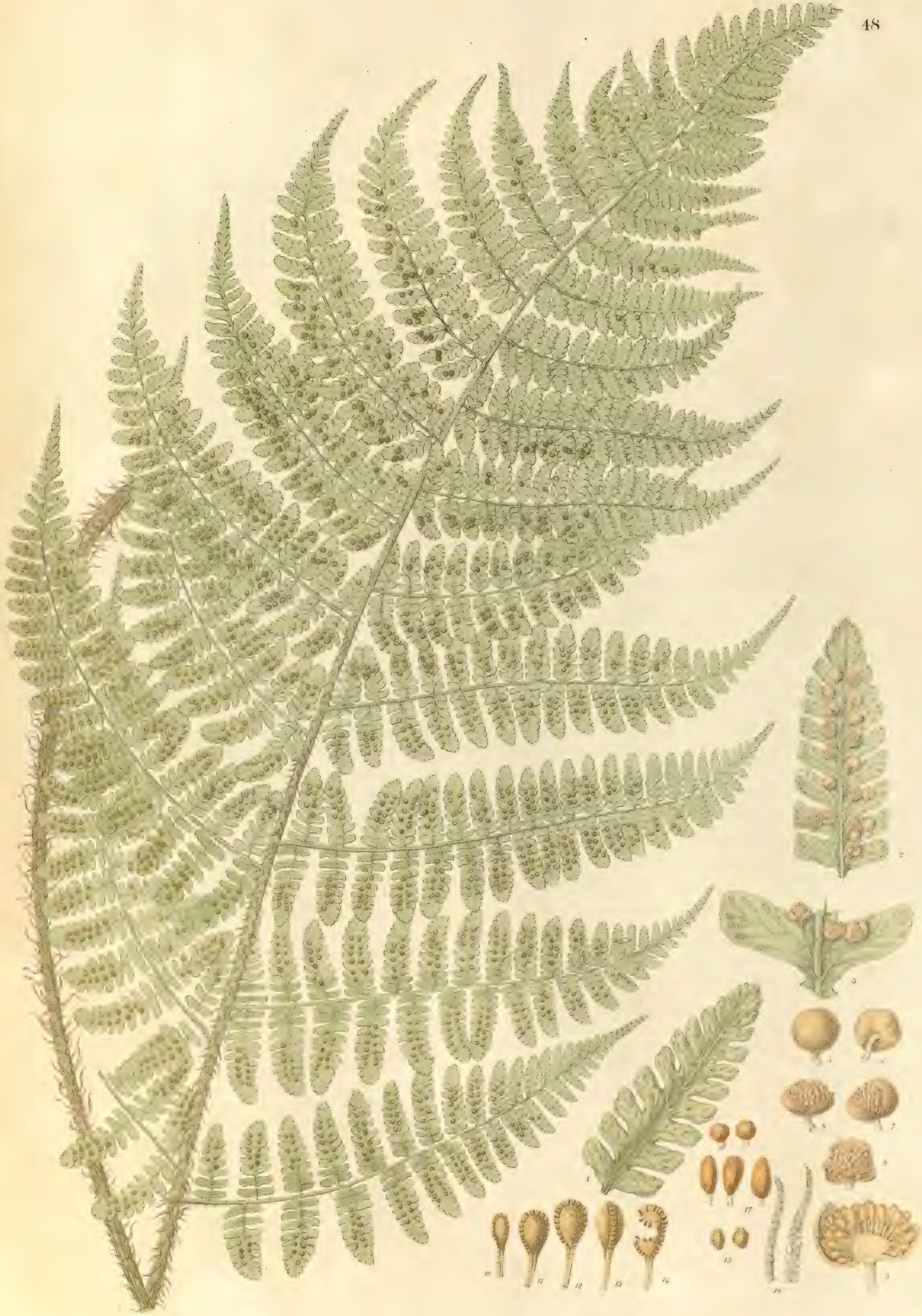
It is necessary to explain the reasons for my having preferred a manuscript name for my fern to one already published. It is eleven years since I first furnished my correspondents in England with specimens of it; and it was included in a general collection of ferns, which I sent in 1823 to the Museum at the India House. Of the arrival of this collection I presume the author of the *Prodromus Floræ Nepalensis* cannot have been ignorant, since the Hon. East India Company most liberally distributed the duplicates in May of the following year. In the museum just mentioned the fern was labelled, "*Cyathea? barbata, Wall., vix non genus novum, Sphæropteris Nob., non Bernhardi:*" a name which Mr. Brown did me the honour of adopting immediately, in preference to that of *Podeilema*, which he had given the plant, at the time he procured the beautiful drawing, from which the details of my plate were derived. In the work alluded to, neither is any notice taken of the name proposed by me, nor is even the source mentioned from whence the fern was obtained; and in a number of other cases the author has treated me with still less courtesy, inasmuch as he repeatedly quotes my names of plants, and at the same time rejects them. In the instance of *Aconitum ferox* (see above p. 35.) he cites that name, he even repeats it, as having been adopted by my illustrious friend Professor DeCandolle, from my manuscript; and yet he rejects us both, and introduces the species under the name of *A. virosum*. In the same manner he disposes of a species of *Aspidium* from Nipal, called after me, and published by a botanist of the greatest authority and celebrity, one of the dearest and most esteemed friends I possess in the world, Professor Hooker; not to mention a great many other instances of a similar nature, and some of them still more pointed, which occur in his own publication, as well as in his additions to those of others. Having never in my life experienced such conduct, or any thing in the remotest degree like it, from any other quarter, I might have been justified in the course I have taken; but there is another reason for my not adopting the name *Peranema*, which is, that there exists already a genus of *Verbenaceæ* called *Peronema* by the late Mr. Jack, in a work which was published in 1822 (*Malayan Miscellanies, vol.* 2. *no.* 7. *p.* 46.). That these names are likely to be confounded must at once be evident, and is proved by M. Kaulfuss, who in speaking of this genus of ferns uniformly calls it *Peronema*.

Plate XLVIII. Fig. 1. A pinnula presenting the upper surface. 2. The same viewed from below. 3. A segment of the same, with two lobes still more enlarged, showing the fructification and the glandular veins. 4. A detached sorus with its peduncle. 5. The same seen from below. 6. 7. The same after bursting, showing the bivalvular involucrum and the crowded seeds. 8. The same in a still more advanced state, with the valves entirely expanded. 9. Vertical section of a sorus, exhibiting the hemispherical receptacle with the seeds attached. 10. 11. 12. 13. Capsules with their pedicel. 14. The same burst open. 15. Seeds. 16. Two jointed hairs detached from the upper surface of the pinna. 17. Capitate glandular bodies, removed from the veins on the under surface of the pinna, of various shapes. The last eight figures highly magnified.

Mucuna macrocarpa

[illegible] [illegible]

M Gauci lithog


1
2
3
6
7
8
9
10
11
12
13
14
15
16
17

C. Curtis frond. Fr. Bauer anal. del.^t

Printed by Engelmann Graf Coindet & Co.

M. Gauci lithog.

Sphaeropteris barbata

ECHITES RHYNCHOSPERMA. Tab. 49.

Foliis ovato-lanceolatis, acuminatis, glabris; floribus laxè cymosis, limbi corollæ tubo longioris laciniis falcato-obovatis; folliculis gracilibus, longissimis, parallelis, pendulis; seminibus longè rostratis, comâ maximâ.

Habitat in Martabania secus ripas fluminum Saluen et Attran, adque Moalmyne, Amherst, &c. Floret fructificatque mensibus Martio—Majo.

Frutex magna, volubilis, ramosa, trunco diametrum pollicarem 2-pollicaremve emetiente, cortice fusco, calloso-punctato, lævi. Rami teretes, glaucescentes. Folia patentia, opposita, approximata, ovata vel oblongo-lanceolata, attenuato-acuminata, leviter undulata, basi acuta, nunc rotundata, lætè viridia, glaberrima, subtùs nervosa et reticulata, axillis nervorum concavis, puberulis; 3—5-pollicaria, ad palmaria. Petioli glabri, teretes, suprà plano-sulcati, *ciliis* axillaribus subulatis, carnosis, seriatis, ramum utrinque ambientibus. Cymæ terminales, et in ramis junioribus infra folia sæpè oppositæ, lato-ovatæ, pollices 5—6 emetientes, laxæ, multifloræ, irregulariter tèr quatèrve dichotomæ. Pedunculi complanati, glabri; *universalis* 2-pollicaris; *ultimi pedicelli*que unguiculares, rufescentes, puberuli. Bracteæ oppositæ, lanceolatæ, ciliatæ, 2—3-lineares. Flores magni, pulcherrimi, odorati, albi, tubo limboque versus faucem rubris. Calyx oblongus, puberulus, ultra medium 5-fidus, *laciniis* ligulatis, obtusis, fundo extra corollam corpusculis 5-planis, carnosis. Corolla hypocrateriformis; *tubus* quinquangularis, semiunguicularis, basi parùm ventricosus, extùs glaber, intùs præcipuè ad faucem contractam munitus pilis canis, brevibus; *limbus* plano-patentissimus, tubo duplò longior, profundè partitus in *lacinias* 5, obovato-falcatas, obtusissimas, basi angustatas. Stamina 5 inclusa; *filamenta* carnosa, puberula; *antheræ* sagittatæ, acuminatæ, invicem *stigmati*que subcapitato cohærentes, lobis posticis longis, polline vacuis. Ovarium glabrum, ovatum, annulo carnoso, 5-partito, brevissimo, circumdatum. Stylus longiusculus. Folliculi 2 penduli, paralleli et approximati, pedales ad sesquipedales, cylindracei, acuminati, sessiles, glabri, basi attenuati, ætate compressi, coriacei, fusci, intùs lævissimi, nitidi, ferruginei. Semina ovata, plana, ferruginea, semiunguicularia, lævia, desinentia in rostrum planum, angustissimum, pollicare, basi leviter dilatatum, apice articulatìm adfigens *comam* splendidissimam, amplam, bipollicarem.

This is an exceedingly handsome climber, and certainly the most ornamental of the genus to which it belongs. The flowers are not unlike those of *Cerbera fruticosa* Roxb.

Plate XLIX. Fig. 1. Calyx opened showing the pistil. 2. Corolla opened. 3. Anthers viewed from two sides. 4. Follicles. 5. Seed with its remarkable beak and long coma.

CHIRITA GRANDIFLORA. Tab. 50.

Foliis ovatis, acuminatis, pilosis; pedunculis axillaribus paucifloris, nunc 1-floris; caule adscendente.

Habitat in montibus altissimis Napaliæ ad loca umbrosa, humida, super rupibus. Floret tempore pluviarum, mensibus Julio et Augusto.

Planta gracilis, adscendens, carnosa, pilis mollibus, patulis, hyalinis conspersa, pedalis, basi repens, radiculis filiformibus, fuscescentibus, ramulosis. Caulis teres, pennam anserinam crassus, sæpiùs simplex, nunc pari uno duobusve *ramorum* oppositorum, brevium. Folia paribus paucis opposita, patentia, oblonga vel ovato-oblonga, acuminata, acutè serrata, basi obtusa et obliqua, leviter inæquilatera, 3—6-pollicaria, carnosa, saturatè viridia, utrinque pilosula, suprà parùm rugosa, subtùs reticulato-venosa, costâ elevatâ, nervisque alternis, arcuatis. Petiolus teres, suprà leviter sulcatus, foliò tertiò vel dimidiò brevior. Flores magni, speciosi, rosei, axillares, solitarii, rariùs in pedunculo communi geminati, vel ternati, tuncque brevè pedicellati, inodori, 2½-pollicares, erectiusculi. Pedunculus teres, carnosus, ex albido dilutè roseus, pilosulus, longitudine ferè petioli, supra medium, vel dum adsunt flores 2 vel 3 infra pedicellorum bases *bracteis* 2 oppositis, foliaceis, lanceolatis, acutis, semiunguicularibus, ciliatis. Calyx membranaceus, deciduus, pallidus, amplus, oblongus, æstivatione inflato-ovatus, subvalvatus, 1½-pollicaris, 5-nervius, subquinquangularis, pilosus, erubescenti-striatus, 5-fidus, obsoletissimè 2-labiatus; *laciniæ* erectæ, lanceolatæ, attenuato-acuminatæ, inferiores 3 paullò latiores, sinubus recurvato-porrectis. Corolla infundibuliformis, calyce duplò longior, extùs pilosula, basi calyce angustior, striata, sensim ampliata in *limbum* patentem, 2-labiatum 5-lobum; *lobi* ovati, obtusi, *faux*que pervia, flava venis rubris reticulati; *superiores* 2 breviores; *inferiorum* intermedius major. Stamina 5, medio corollæ inclusa; *fertilia* 2, longâ distantiâ infra sinus loborum labii inferioris inserta, parallela, approximata, glabra; *filamenta* carnosa, filiformia, supra basin complanato-dilatata et spiraliter torta, apice incurva; *antheræ* majusculæ, reniformes, nutantes, contiguæ et supernè cohærentes, 1-loculares, rimâ communi hiantes, *polline* pallidè flavo. Stamina 3 *sterilia*, subulata, pilosula, subcapitata; 2 insertione interlabialia, tertium hisce intermedium, obsoletum. Ovarium gracile, subcylindricum, glabrum, subpedicellatum, basi cinctum *disco* brevissimo, carnoso, flavo, crenulato, pseudo-quadriloculare, polysporum, *placentis* nempè 2 parietalibus, oppositis, ad axin ovarii contiguis, bilobis, marginibus liberis, parùm recurvis ovuliferis. Stylus carnosus, cylindricus, pilosus, ovario brevior. Stigma infra faucem, foliaceum, dimidiato-infundibuliforme, bilobum, supra antheras elevatum, incurvato-descendens, lobis planis, oblongis, obtusis, marginibus interioribus parallelis. Capsula gracillima, lævis, digitum longa, stylo emarcido, pilosulo terminata, utrinque lineolâ obsoletissimâ sulcata, 2-locularis, longitudinaliter bivalvis, valvulis angustissimis, membranaceis. Dissepimenta 2 opposita, 2-juga, marginibus seminifera. Semina minuta, subulata, calva, utrinque acuta, fusca.

This charming plant belongs to the family of *Didymocrapeæ*. I have retained Dr. Hamilton's name for the genus, in preference to that of *Calosacme*, under which I sent it to the Hon. East India Company's Museum in 1824, although it is founded on a fictitious native name, furnished to my late friend while he was in Nipal.

Plate L. Fig. 1. Calyx opened. 2. Corolla opened. 3. Stamens.

HIBISCUS MACROPHYLLUS. Tab. 51.

Arboreus, foliis amplissimis, rotundato-cordatis, acuminatis, crenulatis, 9-nerviis, subtùs glandulosis, petiolis pedunculisque hirsuto-tomentosis; calyce exteriore 12-fido; capsulâ polyspermâ, seminibus margine sericeo-barbatis.

Hibiscus macrophyllus, *Roxb. Hort. Beng. p.* 51. *Hornem. Suppl. Catal. Hort. Hafn.* 149. *Decand. Prodr.* 1. *p.* 455.

Habitat in Chittagong, ubi floret tempore frigoris, Januario et Februario, indeque in hortum botanicum Calcuttensem introductus; etiam in Sillet. Fructus maturescunt mense Majo.

Nomen Bengalense: *Cāsyapālā.*

Arbor magna, ramosa et umbrosa, trunco recto, cortice induto cinerascente; *ramuli* cylindracei, grisei, à vestigiis foliorum et stipularum annulati, uti petioli pedunculique densissimè vestiti tomento molli, brevi, stellato, cano, pilis intermixto prælongis, patentissimis, fasciculatis, valdè copiosis, ferrugineis, nitidis, molliusculis, seriùs deciduis. Folia magna, undique patentia, satis regulariter tamen per ramulos spiræ in modum disposita, longè petiolata, orbiculato-cordata, acumine angusto, pollicari terminata, indivisa, levitèr crenulata, sinu basis angusto lobisque magnis rotundatis; subcoriacea, utrinque mollitèr et densè tomentosa, præcipuè subtùs ubi incana, 9-nervia, nervis ferrugineo-pilosis, medio vel ultrà medium notatis glandulâ carnosâ, lævi, oblongâ, rimâ longitudinali exsculptâ; palmaria, pedalia, usque ad bipedalia. Petioli cylindrici, crassi, utrinque parùm incrassati, densè piloso-tomentosi, diametrum folii longitudine æquantes. Stipulæ magnæ, foliaceæ, oblongæ, obtusæ, oppositæ, utrinque sericeæ, recurvato-patentes, citò deciduæ, pallidæ, intùs ad basin rubicundæ. Inflorescentia terminalis, semel bisve ramosa, constans floribus aliquot magnis, flavis, fundo atropurpureis, brevè pedunculatis, inodoris. Bracteæ spathaceæ, magnæ, pilosæ, demùm bipartitæ, citò caducæ. Pedunculi crassi, subclavati, densè pilosi, semipollicares. Calyces valdè hirsuti, persistentes; *exterior* 12—14-partitus, laciniis linearibus, pollicaribus; *interior* profundè 5-fidus, exteriore paullò longior, *laciniis* lanceolatis, acutis. Corolla campanulato-patens, limbo pollices 3 transversos emetiente; lobi obovati, integerrimi, extùs venosi leviterque pilosi et purpurascentes. Stigmata 5 vel 6, clavata, purpurea. Capsula obovato-globosa, densè barbata, calyce utroque inclusa, interiore parùm brevior, 5—6-valvis. Semina plurima, compressa, reniformia, fusca, juxta marginem, salvo hilo, densissimè barbata villis patentissimis, longissimis, pallidè ferrugineis, sericeis, lateribus glabra.

For the principal part of the above description, as well as for the drawing from which the plate has been engraved, I am indebted to the kindness of Henry Colebrooke, Esq. The tree was introduced into the Calcutta garden in 1810, by the late Mr. John Roxburgh, and has at present attained a height of twenty-five feet. It forms at all times a beautiful object, but especially when in flower. The leaves are very large and spreading; they are disposed in a spiral manner round the branches. It appears from the *Hortus Bengalensis* that ropes are made from the bark, an object for which its tough and fibrous texture seems to render it especially adapted.

Plate LI. Fig. 1. Calyx opened. 2. Corolla opened. 3. Capsule. 4. A detached valve. 5. Seed.

ALLANTODIA BRUNONIANA. Tab. 52.

Frondibus simpliciter pinnatis, oblongis; pinnis caudato-acuminatis, integerrimis.

Habitat in monte Napaliæ Sheopore, ad Mareko; vigens Januario. In insula Otahaite detexit David Nelson. (*Herb. Banks.*)

Filix erecta, glabra, pedalis, 2- quin 3-pedalis, surgens e radice modicè crassa, fibrosa. Stipites pauci, basi pennam anserinam ferè emetientes, anticè sulco latiusculo exarati, spithamæi, abientes in *rachin* gracilem, rectam. Frons oblonga, 8—10-pollicaris, aliquandò altior, pinnata. Pinnæ alternæ, patentes, subapproximatæ, inferiores nunc oppositæ, oblongæ, integerrimæ, vel levitèr sinuatæ, attenuatæ in acumen gracile, angustùm, pollicare, obsoletè crenulatum; basi retusæ lobis obtusissimis, nunc obliquè cuneatæ, sessiles, latere inferiore nunc subadnatæ; membranaceæ et tenuissimæ, subdiaphanæ, pallidè virentes, 5 ad 6 pollices longæ, pulcherrimè reticulatæ, apicibus venularum intra margines subincrassatis, nervo medio gracili, subtùs levitèr elevato; *terminalis* proximis parùm major. Sori oblongo-cylindrici, nervo medio approximati, ab eodem obliquè divaricati, suboppositi, lineas 4 vel 5 longi, exteriores parùm breviores, versùs apicem pinnæ paucæ vel nullæ, ramulo superiori venæ inserti, ferruginei. Indusium tenuissimum, membranaceum, demùm nigricans, sorum arctè involvens, infraque eum venulæ utrinque insertum, margine insertionis superiori vel interiori satis regulariter dehiscens, et mox extrorsùm vel deorsùm reflexum. Capsulæ copiosæ, subrotundo-pyriformes, pedicellatæ, annulo majusculo, saturatiùs ferrugineo cinctæ.

I found this singular and beautiful fern in the dense forest of Oaks and Rhododendrums on Sheopore in Nipal. In 1823 I sent specimens to the Hon. the East India Company's Museum, under the designation "*Asplenium? reticulatum, an Allantodia?*" Mr. Brown, who at once decided that it was a species of *Allantodia*, did me the favour to show

49

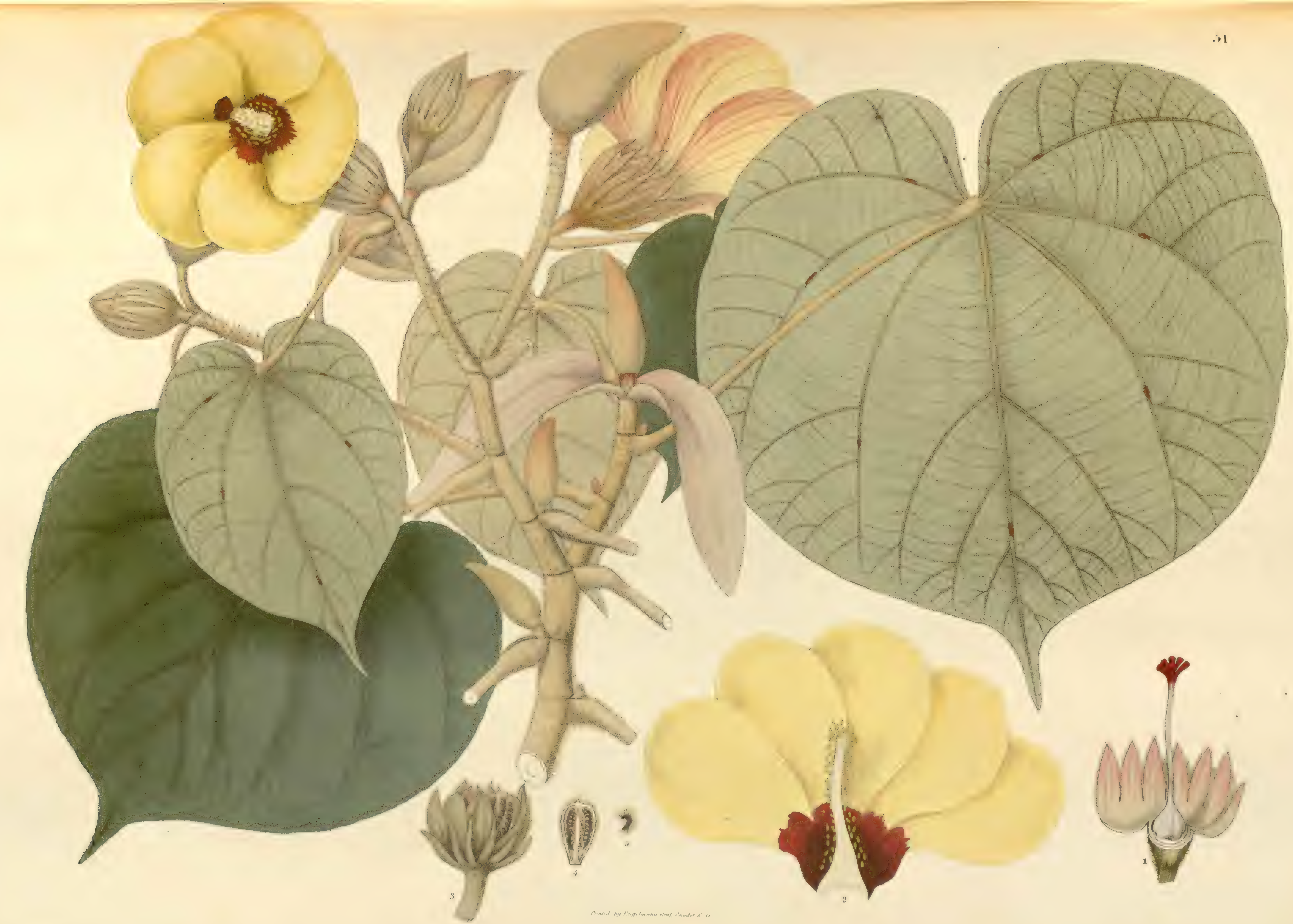
Printed by Engelmann, Graf, Coindet & Co

M Gauci lith

Echites rhynchosperma

Gorachand del.
Printed by Engelmann Graf Coindet & C.
M. Gauci lith.

Chirita grandiflora

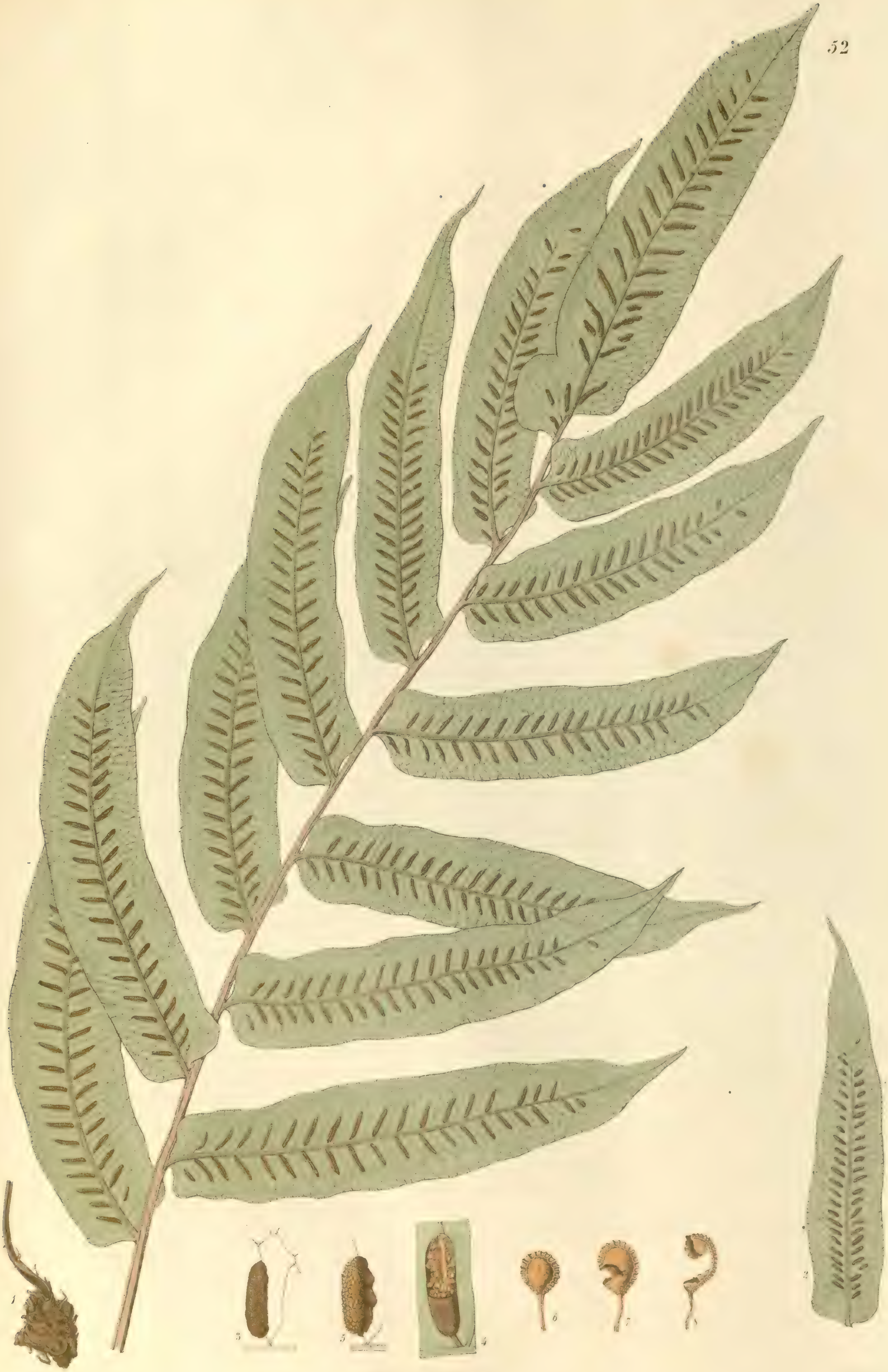


Gerachand del.

Printed by Engelmann Graf, Coindet & Co

Hibiscus macrophyllus

M. Gauci lithog



C. Curtis del.ᵗ

Printed by Engelmann, Graf Coindet & Co.

M. Gauci lith.

Allantodia Brunoniana.

me specimens in the Banksian Herbarium, collected by David Nelson in Otahaite, in Cook's third voyage, differing in no respect from my fern. The same gentleman has also had the goodness to procure the drawing, from which the accompanying plate was engraved, in which fig. 2. represents a leaflet of the Otahaitean fern. The lines of fructification before the bursting of the indusium are perfectly cylindrical, and look like a number of microscopical sausages, attached to the underside of the fern; and it is this singular appearance, which is so happily indicated in the name of the genus.

Plate LII. Fig. 1. Root and base of the stipes. 2. A pinna of the Otahaitean plant. 3. Sorus. 4. The same partly opened. 5. The same after the bursting of the indusium. 6. 7. 8. Capsules.

CŒLOGYNE MACULATA. Tab. 53.

Foliis lanceolatis, plicatis; labelli lobis lateralibus abbreviatis, integris: intermedio ovato, retuso, undulato, disco lineis 4 rectis, denticulatis; columnâ integrâ, bracteâ ventricosâ. *Lindl. Orchid. p.* 43.

Cœlogyne maculata, *Lindl. loc. cit.*

Habitat super saxis arborumque truncis inter muscos montium Pundua, Bengalæ orientali confinium, florens et fructigera ad finem anni. Primùm detexit M. R. Smith, inque hortum Calcuttensem introduxit anno 1816.

Nomen Khasianum: *Atia-Chakarpate.*

Planta parva, sæpiùs gregaria, glabra. Pseudobulbus abbreviatus, subcylindricus, pollicem crassus, duos longus, mediò parùm contractus, rigidus, atroviridis, lineis latis, reticulatis, purpureis, e punctis innumeris constantibus ornatus, verticis centro elevato in umbilicum conicum; laxè obtectus reti tenuissimo, capillaceo, griseo, persistente, demùm variè rupto; e basi exserens *radiculas* plures, cylindricas, simplices. Folia geminata, terminalia pseudobulbi, vel lateralia ex ejusdem basi, erecto-patentia, lanceolata, coriacea, lævia, utrinque acuta, parùm plicata, obsoletè 3-nervia, 6-pollicaria, suffulta *petiolo* brevi, convexo, anticè profundè canaliculato. Flos magnus, pulcherrimus, candidus, labello intùs flavescente et purpureo-variegato, fragrans, patens, nutans, pedunculatus, terminalis pseudobulbi, vel paullò supra basin ejus lateralis, et tunc sæpiùs 2 oppositi. Pedunculus gracilis, teres, $1\frac{1}{2}$-pollicaris, fructifer elongatus, salvâ terminali parte involutus *vaginis* laxissimis, amplis, ventricosis, pallidè viridibus, lævibus, glaucis, unguicularibus, deciduis, in tenella planta inclusis tegmine bracteæformi, crustaceo, mox fracto partimque ope retis istius super pseudobulbum elevato; apice *bracteâ* pollicari, infundibuliformi, obtusissimâ, convolutâ, ovarium includente, mox caducâ. Corolla undique patentiuscula. Petala plana, subcarnosa, oblongo-lanceolata, acuta, basi simplicissimâ levitèr contracta, obsoletè 3-nervia, ferè æqualia, parùm ultra pollicem longa, interiora paullò angustiora. Labellum sessile, convoluto-infundibuliforme, petalis vix brevius, expansione lato-ovatum, *limbo* subrotundo, trilobo, lobis rotundatis, crenato-undulatis, intermedio maximo, profundè retuso, lateralibus brevibus; intùs flavo, maculis quadratis lineisque purpureis ornato, cristis 4 rubris, glanduloso-dentatis, parallelè decurrentibus. Columna clavata, anticè sulcata, labello inclusa, apice membranaceo-dilatata, cucullata, utrinque 2-denticulata: *stigmatis* 2-labiati labio inferiore brevissimo, obtuso. Anthera terminalis, decidua, conica, obtusa, anticè parùm producta, subtùs sulcata, incompletè 2-locularis. Massæ pollinis in singulo loculo geminatæ, tenuissimæ, planæ, cuneatæ, parallelæ, basi acutiusculâ ope fili granulosi valdè elastici unitæ. Ovarium cylindrico-clavatum, 3-sulcatum. Capsula clavata, profundè sulcata, columnâ emarcidâ terminata.

This and the following most lovely plant are natives of the lofty range of mountains which confine Bengal towards the district of Sillet in an easterly and northerly direction. They were introduced into the Hon. East India Company's garden at Calcutta in 1816, and I have often had the satisfaction of seeing them in flower there. Our mode of treating these and similar *Epiphytes*, is to place them on beds made of brickwork, raised four or five feet from the ground, containing a rich mould mixed with a large proportion of pebbles and resting on a stratum of large stones or masses of vitrified bricks, so as to admit of being perfectly drained. The surface is covered with a quantity of moss, and the whole structure is placed in a shady and sheltered situation, corresponding to the natural place of growth of such plants. By the aid of these beds, and by a constant attention to the necessity of keeping the roots as well as the plants themselves moderately moist, I have succeeded in cases even where there was but little hope; for instance, with plants from the higher region of Nipal, and even from Gossain Than in the Himalaya.

Our species (though quite distinct) approaches to *Epidendrum præcox* of the late Sir. J. E. Smith, a botanist whose name will be held in veneration as long as the Science has a single votary; and whose loss is the more deeply lamented by me, because on my return to Europe I had looked forward with great delight to the happiness of becoming personally acquainted with that truly excellent and amiable man.

Plate LIV. Fig. 1. Flower dissected. 2. Bract detached. 3. A pair of pollen-masses separated to show the elastic thread by which they are united.

CŒLOGYNE WALLICHIANA. Tab. 54.

Foliis - - - - labelli lobo medio ovato, denticulato, apice bilobo, integro, cum apicula : lateralibus obsoletis, disco cristis 5 completis, denticulatis ; basi leviter calcarato ; columnâ apice dentatâ ; stigmatis labio inferiore 3-cuspidato. *Lindl. Orchid. p.* 43.

Cœlogyne Wallichiana, *Lindl. loc. cit.*

Habitat cum antecedente, tempusque florendi idem.

Nomen Khasianum : *Atia-Palangcha.*

Habitus omninò alterius speciei, sed statura, præcipue flores parùm majores. Pseudobulbus *radiculæ*que idem. Folia haud observavi, sed vix multùm ab illa specie differunt. Flos maximus, purpureus, patentissimus, nutans, e basi pseudobulbi lateralis, sæpèque duo oppositi, vel ejusdem terminalis, inodorus. Pedunculus gracilis, subclavatus, 3-pollicaris, fuscescens, infernè involutus *vaginis* paucis, alternis, cylindraceo-attenuatis, pollicaribus, inferioribus brevioribus, purpurascentibus, punctis valdè copiosis, callosis, elevatis, albicantibus, asperis ; apicè *bracteâ* membranaceâ, ovatâ, acutâ, deorsùm angustatâ, ventricoso-convolutâ, fusco-reticulatâ, ovarium involvente, caducâ. Petala lanceolata, acutissima, 2-pollicaria, demùm revoluta et subsecunda, *exteriora lateralia* infra basin labelli subdilatata in calcar obsoletum, brevissimum ; *interiora* exterioribus ferè dimidiò angustiora. Labellum adscendens, convoluto-infundibuliforme, subunguiculatum, expansione lato-ovatum, ferè $2\frac{1}{2}$-pollicare, limbo 3-lobo, lobis lateralibus obsoletis, intermedio bilobo cum cuspidula media, acutè denticulato, intùs flavescente, cristis 5 acutè glanduloso-dentatis, inæqualibus, deorsùm evanidis, mediâ abbreviatâ. Columna gracilis, clavata, apice marginato-cucullata, profundè 2-loba et utrinque 2-dentata ; *stigmate* anticè infra cucullum porrecto, 2-labiato, labio superiore 2-dentato, inferiore descendente, angusto, 3-dentato. Anthera *massæque pollinis* ut in priore specie.

This charming species comes very near to *Epidendrum præcox* Smith, but differs in having a much shorter spur, in having a ventricose bract, and in the pseudobulbs being almost truncated.

Plate LIV. Fig. 1. Flower dissected. 2. Apex of the column. 3. Anther. 4. Unripe capsule issuing with two young leaves from the centre of the sheaths of the peduncle.

ZINGIBER BARBATUM. Tab. 55.

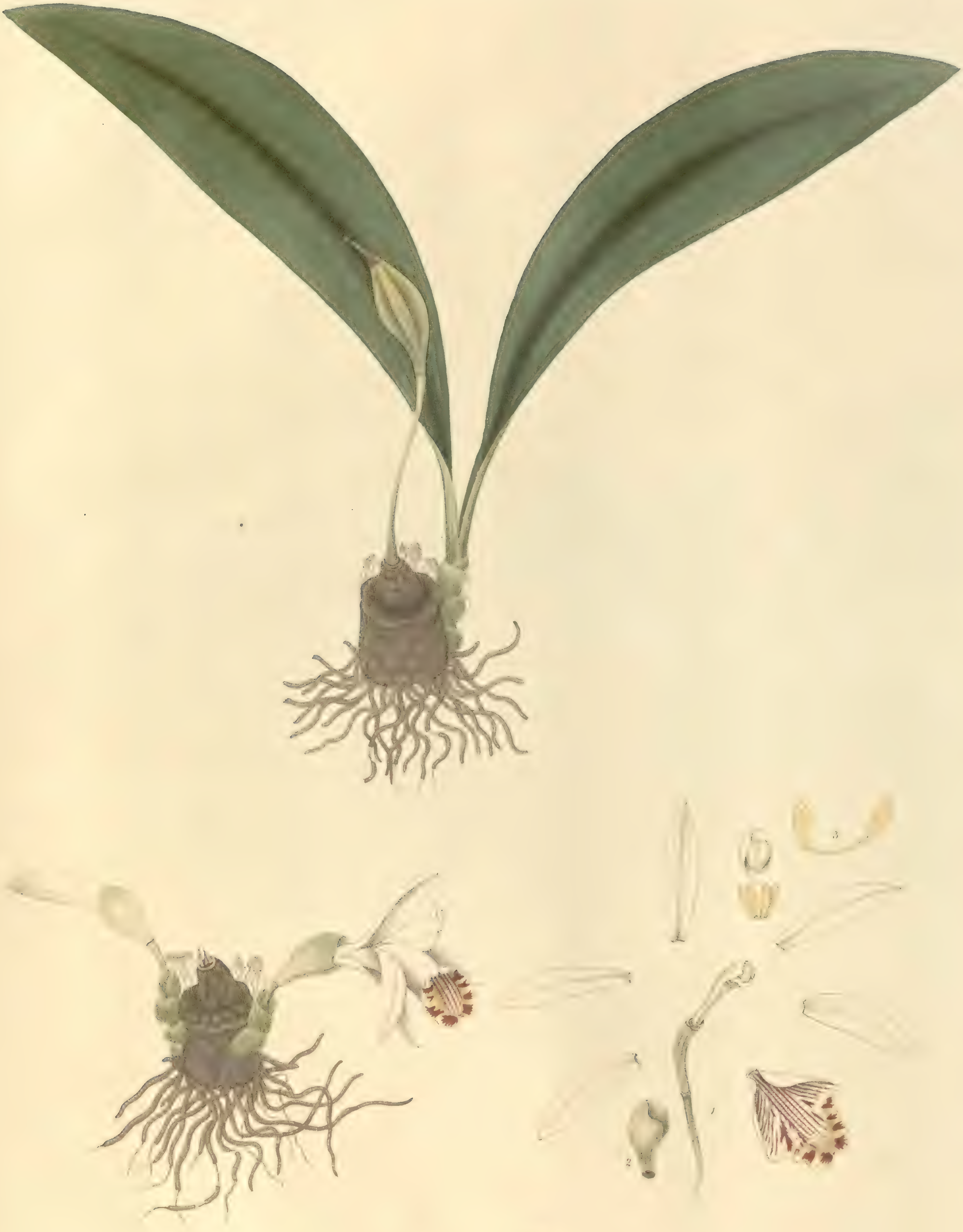
Foliis lanceolatis, acuminatis ; spicis radicalibus ovatis, basi cuneatâ terræ subimmersis, bracteis ovatis, gibboso-ventricosis, villosis, apice subulato-rostratâ patentibus ; labello ovato, retuso, suprà convexo.

Habitat in montibus fluminis Irawaddi, circa Prome, fructifera mense Septembri. In horto botanico Calcuttæ floret mensibus Augusto—Februario.

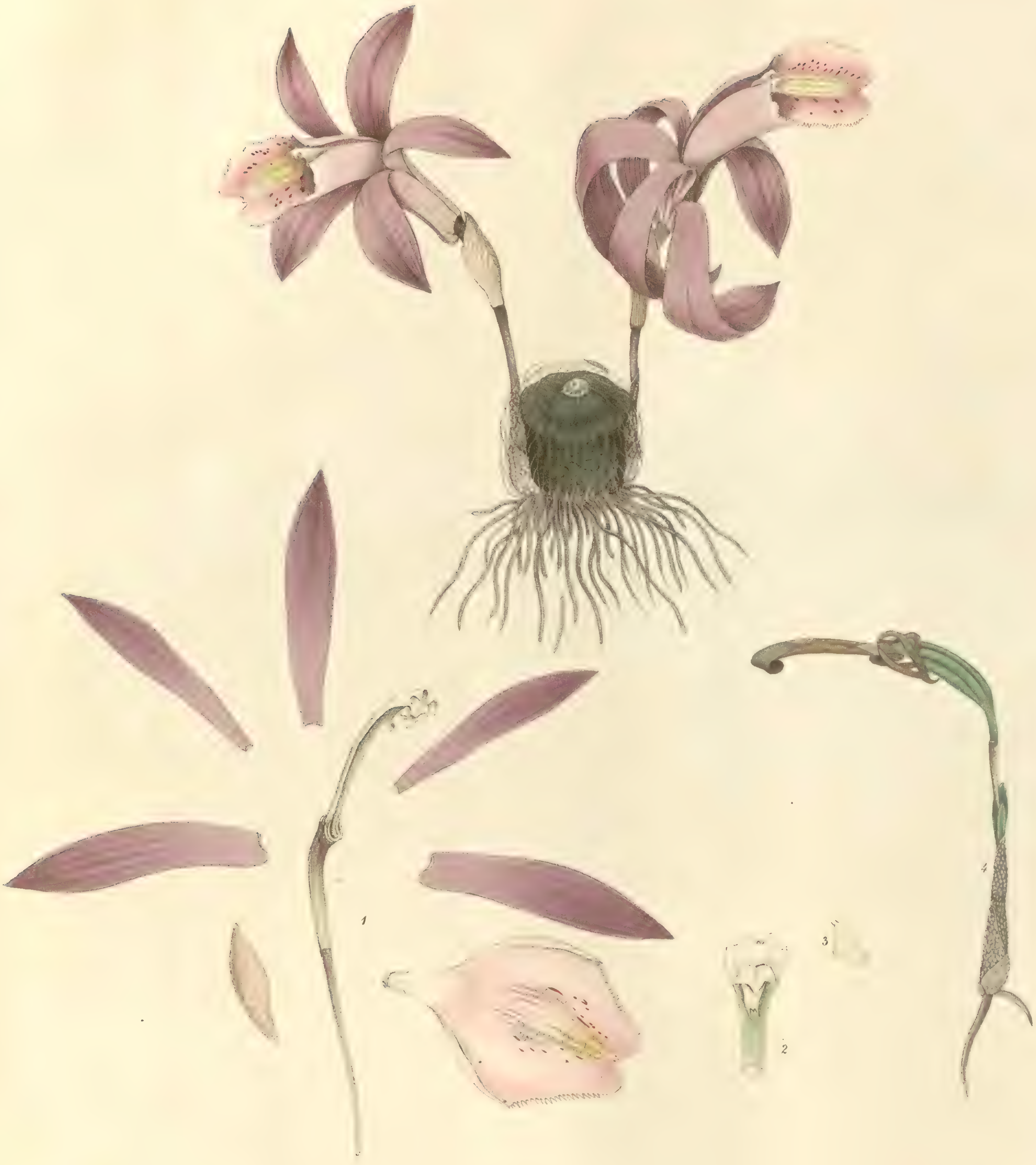
Radix carnosa, repens, digitum modicum crassa, subarticulata, intùs pallidè flavicans, odore parùm aromatico, fibras emittens cylindricas, breves, crassas, quasdam terminatas *tuberibus* parvis, ovatis, intùs lacteo-aqueis, ferè insipidis et inodoris. Caules aliquot erecti, $1\frac{1}{2}$ ad 4- imo 5-pedales, teretes, e basi diametrum pollicarem ferè emetiente sursùm attenuati et graciles, omninò obtecti *vaginis* adpressis, multilineatis, superioribus pilosulis, ore utrinque obtusè bilobis, intùsque ligulâ brevissimâ, membranaceâ. Folia bifariè patentia, sessilia, oblongo-lanceolata, attenuato-acuminata, basi acutiuscula, 5—7-pollicaria, utrinque præprimis subtùs villis adpressis, mollissimis conspersa, subtùs pallida. Scapi aliquot radicales, vel ex imo caule progredientes, crassi et rigidi, 2-pollicares, obtecti squamis ovatis, acutis, superioribus subulato-acuminatis, villosis. Spica ovata, acuta, 2—3-pollicaris, basi cuneatâ vix supra terram elevata, undique imbricata *bracteis exterioribus* lato-ovatis, gibboso-subventricosis, dorso villis copiosis, longis barbatis, intùs lævibus, striatis, marginibus adpressis, apice terminatis cuspide longâ, tereti, patula, viridi, basi rufescentibus, unifloris ; *interioribus* membranaceis, ovatis, acutis, villosulis, convolutis, calyce parùm longioribus. Flores majusculi, ex albo dilutè rosei. Calyx 2-dentatus. Corollæ *tubus* cylindricus ; *limbus* exsertus, glaber, bilabiatus ; *laciniæ exteriores* 3, lanceolatæ, acuminatæ, $\frac{1}{2}$-pollicares : *dorsalis* adscendens, cucullata, rostrato-acuminata, apice incurva, labium superius efficiens ; *laterales* planæ, infra labellum parallelæ, cumque eo labium inferius formantes ; *labellum* sive *lacinia interior* patens, ovatum, retusum, suprà valdè convexum ferè palatiferum. Anthera magna, subsessilis, cucullo limbi exterioris inclusa, desinens in rostrum cylindraceo-subulatum, exsertum et supra labellum incurvum. Stylus clavatus, apice incurvâ parùm exsertus. Stigma convexum, ciliatum. Capsula obovata, torulosa, glabra, magnitudine ferè cerasi, continens *semina* atra, lucida, arillo magno, albo ; planè matura haud visa.

This species approaches nearest to *Zingiber squarrosum* of Dr. Roxburgh, which I found abundantly about Rangoon, but differs in having much broader, convex and ventricose bracts, ending in a very long cylindric point. It grows on the hills near the banks of the Irawaddi, about Prome, on both sides of that river, where I saw it with unripe fruit in September. The plants which were introduced thence into the Calcutta Garden, blossom freely during the cold and rainy seasons. The spikes issue from the creeping roots, near the stems, or from the base of the latter, and are barely elevated above the surface of the earth ; they are sometimes compound, that is, a spikelet is produced from one or two of the lowermost bracts. The whole plant possesses a very faint, though pleasant aromatic smell and taste.

Plate LV. Fig. 1. Flower covered with the inner bract. 2. Inner bract and calyx detached from the pistil. 3. Corolla opened.



Cœlogyne maculata



Gorachand delt
Printed by Engelmann. Graf. Coindet & Co.
M. Gauci lith

Coelogyne Wallichiana.

55

Zingiber barbatum

Vishnupersaud del. M. Gauci lith

KÆMPFERIA CANDIDA. Tab. 56.

Spica radicali; laciniâ superiore limbi exterioris infra apicem fornicatam longè calcaratâ; laciniis interioribus obovatis; tuberibus longè pendulis, cavis; foliis - - - -

Habitat in ruderatis et arboretis Martabaniæ, prope Amherst et Moalmyne, florens Martio.

Radix crassa, carnosa, fibras emittens copiosas, cylindricas; harum aliquot longissimæ *tubera* suspendunt oblonga, 2—3-pollicaria, obtusa vel acuta, fusca, fibrillosa, intùs lacteo-alba, cava, gelatinâ repleta hyalinâ, carne molli, inodorâ et insipidâ. Folia haud observata. Spica radicalis, terræ semi-immersa, magna, palmaris, erecta, ovata. Bracteæ magnæ, undiquè sparsæ, ovatæ, acutæ, erectæ, laxè imbricantes, pubescentes, striatæ, membranaceæ, pallidæ, sursùm rubescentes, 2—3-pollicares. Flores magni, fragrantes, albi, limbo mediò lutescente. Calyx cylindrico-clavatus, membranaceus, puberulus, tubo corollæ dimidiò brevior; ore laxo, ciliato, profundè 3-dentato. Corollæ *tubus* cylindricus, puberulus, sursùm lutescens, extùs minutim puberulus, apice dilatatâ trisulcatus. Limbus patens bilabiatus, bipollicaris, labio superiore erecto, inferiore patente; *laciniæ exteriores* oblongæ, concavæ, membranaceæ, 1½-pollicares, *dorsalis* parùm longior, infra apicem subcucullatam abiens in processum sive cornu lineas 4 longum, teres, rectum, attenuatum (undè æstivatio limbi clavato-cornuta); *interiores* istis parùm longiores multòque latiores, obovatæ, obtusæ, basi contractæ; *intermedia* sive *labellum* apice bilobum, sinu profundo angusto, lobis obtusis, lateribus inæqualiter subincisis, deorsùm parùm attenuatum et subconvolutum, disco lineis duabus flavis, contiguis, parallelis, ad basin usque decurrentibus. Filamentum breve, latum, villosum, anticè concavum. Anthera oblonga, carnosa, cristâ coronata brevi, 2-denticulatâ. Ovarium sericeo-villosum. Stylus filiformis, gracillimus, basi *corpusculis* solitis, cylindraceis, valdè longis munitus. Stigma turbinatum, subtruncatum, ciliatum, infra cristam antheræ porrectum.

Although I have not seen the leaves of this plant, there are sufficient characters in the other parts to distinguish it from all the known species. The flowers are the largest of the genus, milk-white with a yellow tint in the centre, and delightfully fragrant. The horn of the upper and outer lobe of the limb is curious, and may be seen long before expansion takes place. No part of the root possesses any aromatic taste or smell.

Plate LVI. Fig. 1. Flower dissected. 2. Calyx and pistil.

CURCUMA PARVIFLORA. Tab. 57.

Tuberibus subnullis; foliis oblongo-ovatis, longè petiolatis; spicâ centrali, pedunculatâ, quadrifariàm imbricatâ; comâ niveâ; labello obovato; antherâ basi muticâ.

Habitat in sylvis riparum Irawaddi, ad Prome, alibique versus Avam. In horto Calcuttensi floret Februario.

Radix carnosa, horizontalis, fibris pluribus crassis, carnosis, unâ alterâve clavato-subtuberosâ, præter quas nulla tubera observata. Folia erecto-patentia, ovato-oblonga, acuminata, basi subrotundatâ obliqua, undulata, 6—8-pollicaria, glaberrima, subtùs glaucescentia, suffulta *petiolis* gracilibus, canaliculatis, æquantibus vel dimidiò brevioribus, basi dilatatâ in caulem brevem, compressum bifariàm imbricantibus. Spica ex centro vaginarum petiolorum erecta, *pedunculo* cylindrico brevi suffulta, oblonga, 3-pollicaris, vix ultra medium petiolorum interiorum elevata. Bracteæ ovatæ, obtusæ, quadrifariàm imbricatæ, 2—3-floræ, basi connatæ intùsque concavæ. Flores valdè parvi, vix supra bracteas porrecti, albi, labello violaceo. Calyx infundibuliformis, brevis, fauce obtusè 3-dentatâ, dente inferiore profundiùs separato et majore. Laciniæ limbi lanceolatæ, obtusæ, super antheram subconvergentes, subæquales, superiore apice subfornicato; *labellum* oblongo-obovatum, obtusum, retusum, recurvato-patentum, suprà violaceum, lineolis albis ad margines radiatum, deorsùm parùm attenuatum, laciniis exterioribus duplò majus. Anthera brevis, nutans, subdiaphana, puberula, basi subarticulata, obtusa et nuda, anticè biloba, lobis tantùm fundo polliniferis; terminata cristâ brevi, lanceolatâ, acutâ, recurvatâ. Stigma infra cristam antheræ, infundibuliforme, ostio transverso.

This is the smallest species of the genus to which it *seems* to belong; for it wants the calcarate base of the anther of a true *Curcuma*. It is a neat little plant.

Plate LVII. Fig. 1. Flower dissected. 2. Stamen. 3. Pistil. 4. Fascicle of flowers.

AMOMUM CORYNOSTACHYUM. Tab. 58.

Radice gracili, cylindricâ, repente, longissimâ; foliis oblongis, attenuato-acuminatis, lævibus; scapo elongato, clavato, bracteis maximis, oblongis, retusis, longè cuspidatis laxè imbricato; spicâ clavato-ovatâ, fastigiatâ; labello obsoletè 3-lobo, basi utrinque 2-dentato; cristâ antheræ maximâ, ovato-cordatâ, integrâ.

Habitat in sylvis *Tectonarum grandium* secus ripas fluminum Martabaniæ, florens Aprili.

Radix longissima, cylindrica, ramosa, repens, digitum minimum crassa, *squamis* remotis, fuscis, subvaginantibus munita, *radiculas* emittens longas, simplices, cylindricas, fibrillosas. Caules plures, remoti, erecti, cespitem amplam formantes, 3—4-pedales, uti omnes plantæ partes læves; pallidè virides, basi fuscescente digitum minimum crassi, sursùm graciles, compositi e *vaginis* adpressis, lineatis, obtusè bilobis; inferioribus aphyllis, rotundato-obtusissimis, integerrimis. Folia approximata, bifariàm patentia, lineari-oblonga, attenuato-acuminata, basi rotundato-acuta, subsessilia, pedalia ad $1\frac{1}{2}$-pedalia, chartacea, pallidè viridia, plana, suprà lucida. Petioli brevissimi, inferiores vix $\frac{1}{2}$-unguiculares. Scapi radicales, adscendentes, cylindrico-clavati, 6—12-pollicares, laxè imbricati *squamis* oblongis, obtusis, coriaceis, striatis, inferioribus brevibus, superioribus 2-pollicaribus, subretusis, cuspide cylindricâ, longâ, patulâ terminatis, spicæ basin involventibus. Spica clavato-ovata, fastigiata, 2-pollicaris, parùm supra terram elevata. Bracteæ inter squamas verticis spicæ ferè reconditæ, membranaceæ, oblongæ, obtusæ, concavæ, 1-floræ, pollicares; *interiores* cylindraceæ, rubicundæ, ore obtusè bilobæ, ovarium et partem calycis occultantes. Flores magni, albi, labello flavo. Calyx tubulosus, rufescens, ore bilobus. Corollæ *tubus* cylindricus, $\frac{1}{2}$-pollicaris, calyce inclusus. Limbi *laciniæ* oblongo-ovatæ, obtusæ; dorsalis subcucullata; *labellum* lato-ovatum, obsoletè 3-lobum, lobo intermedio retuso, lateralibus obtusissimis, disco ad centrum flavo, basi utrinque dentibus duobus subulatis, recurvatis. Filamentum brevissimum. Anthera oblonga, anticè profundè sulcata, coronata cristâ maximâ, lato-ovatâ, obtusâ, subcordatâ, anticè concavâ. Ovarium oblongum, puberulum. Stigma clavatum, vix ciliatum, extra loculos antheræ elevatum, intra cristam occultum.

Plate LVIII. Fig. 1. A leaf, natural size. 2. Flower. 3. The same dissected, with the bracts detached. 4. 5. Stamen viewed from two sides.

STERCULIA VERSICOLOR. Tab. 59.

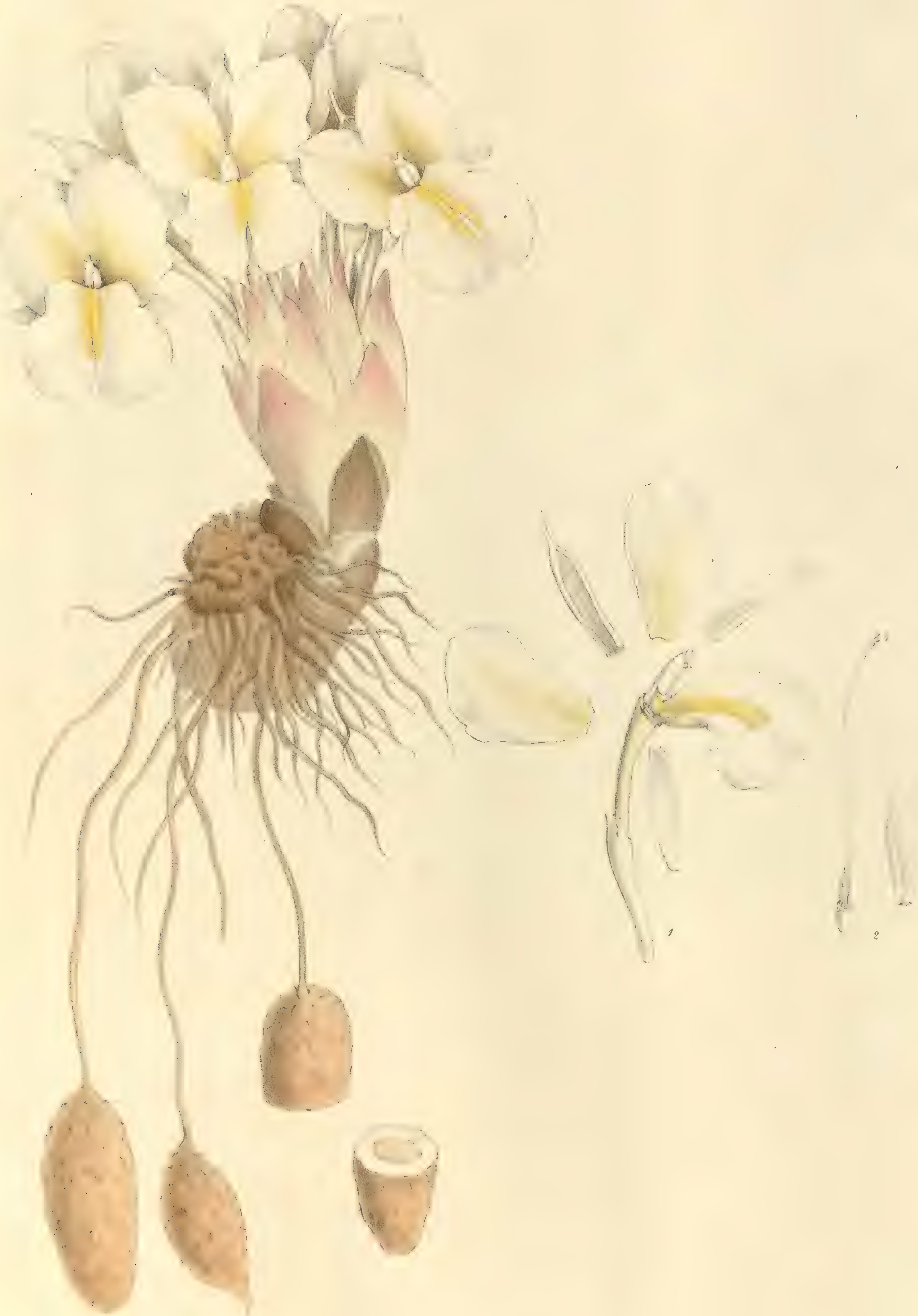
Foliis peltatim digitatis, foliolis 5 oblongis, acuminatis, subtùs tomentosis.

Habitat in collibus calcareis ripæ Irawaddi dextræ ad Segaen, Avam contra, florens mense Octobre.

Arbor 16-pedalis, *trunco* crasso, brevi, irregulari, induto cortice lævi, cinereo. Rami numerosi, patentes; *ramuli* cinerei, læves, cylindrici, crassiusculi, vestigiis copiosis foliorum delapsorum notati. Folia approximata, patentia, longè petiolata, peltatim quinata. Foliola oblongo-lanceolata, gracillimè acuminata, integerrima, basi acutiuscula, 5—7-pollicaria, suprà atroviridia, lævia, lucida, subtùs tomento minutissimo, mollissimo, cano obtecta, punctisque paucis, sparsis, glanduloso-pellucidis notata, costâ gracili, nervisque suboppositis, obliquis, parallelis, approximatis, usque ad marginem ferè excurrentibus ibique reticulatis, ad axillas subglandulosis. Petiolus cylindricus, gracilis, 6—8-pollicaris, ad apicem orbiculato-dilatatus, cano-subtomentosus; *partiales* semiunguiculares, basi articulati. Inflorescentia ad apicem ramulorum patens, constans *paniculis* axillaribus, brevè pedunculatis, oblongis, petiolis parùm brevioribus, compositis e racemis brevibus, subsessilibus, sparsis, numerosis, pollicaribus. Flores parvi, numerosi, odorati, pallidè flavi, demùm saturatè aurantiaci, brevissimè pedicellati, masculi et fœminei sparsi. Pedunculi carnosi, rubicundi, demùm atro-sanguinei, cano-pubescentes. Bracteæ parvæ, sparsæ, lineari-ligulatæ, ciliatæ. Perianthium oblongo-campanulatum, subcarnosum, utrinque villosum, 5 lineas longum, 5—6- raró 7-fidum; *laciniæ* oblongæ, obtusiusculæ, apice conniventes, tamen distinctæ, marginibus recurvatis. In floribus *masculis columna filamentorum* cylindrica, apice nutans, *antheras* gerens densè confertas; in *fœmineis ovarium* pedicellatum, ovatum, densè villosum, nutans, 5-sulcatum, circumdatum antheris sterilibus numerosis, sessilibus, lineâ flexuosâ dispositis; *stylus* brevis, inflexus, columnaris, villosus; *stigma* subpeltato-planum, 5-lobum, lobis parvis, obtusis.

This is a very distinct and beautiful species, the flowers of which are remarkable on account of the sweet perfume which they emit, and their variegated appearance, changing from a bright yellow colour, which they have at first, to a deep orange. I have only found the tree on the calcareous hills about Segaen, on the banks of the Irawaddi, opposite to the city of Ava.

Plate LIX. Fig. 1. Male flower. 2. The same opened. 3. Column with the anthers at the top. 4. Female flower. 5. Pistil.

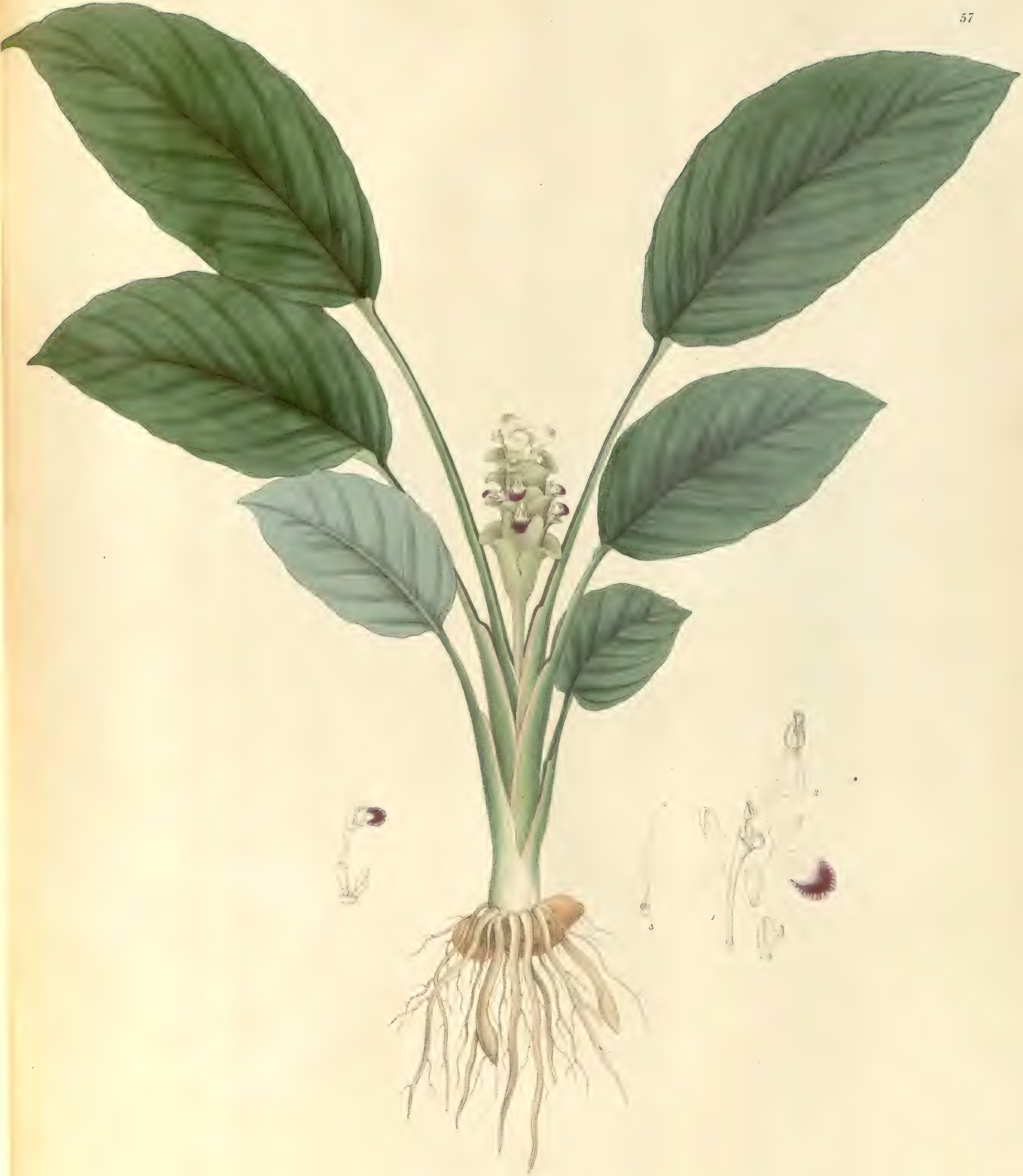


Vishnupersaud del.

Printed by Engelmann, Graf, Coindet & Co.

M Gauci lith

Kaempferia candida



Vishnupersaud del^t

Printed by Engelmann, Graf, Coindet & Co

M. Gauci lith

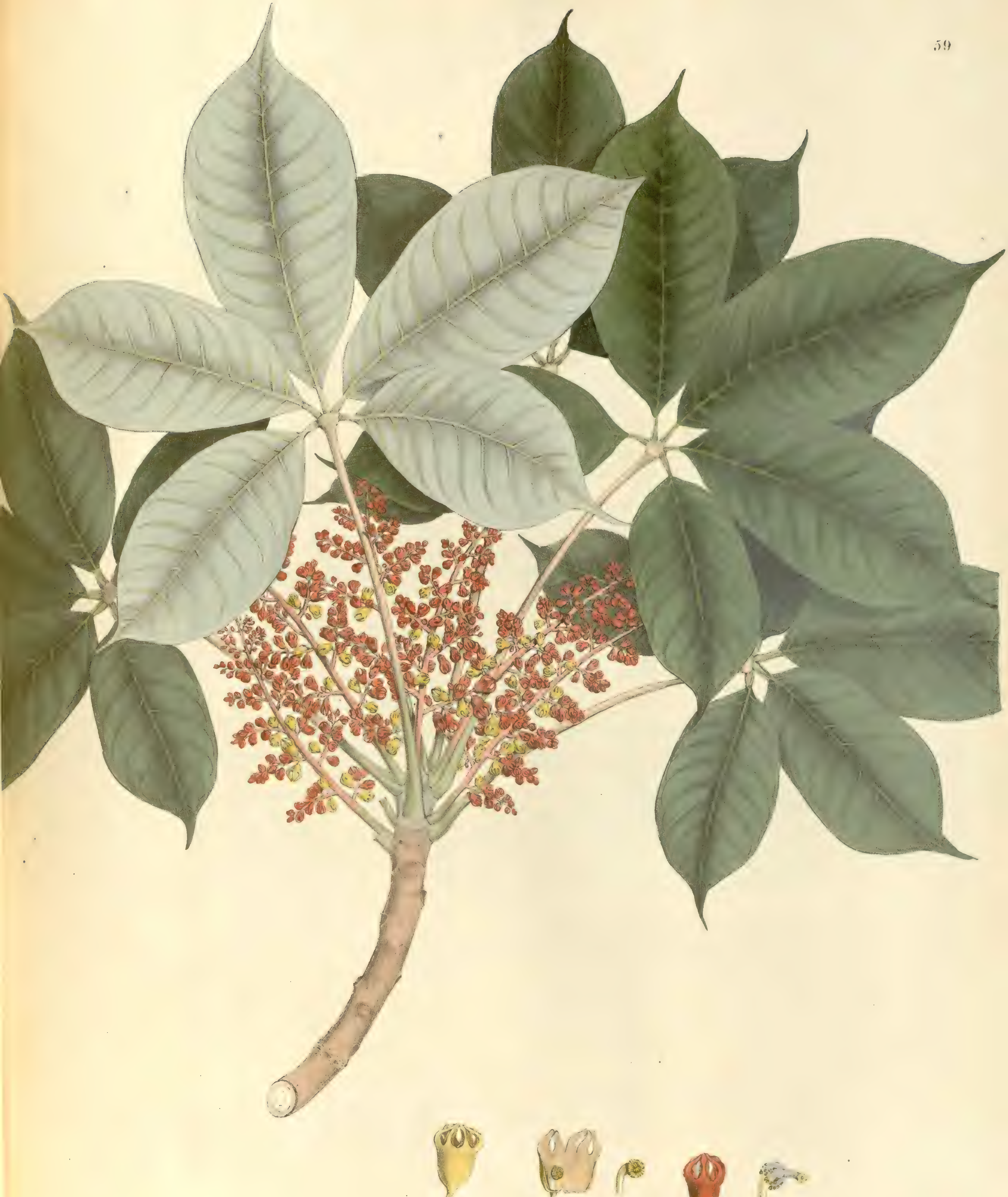
Curcuma parviflora

Amomum corynostachyum

nupersaud del^{t}

Printed by Engelmann, Graf, Coindet & Co

M. Gauci lith



upersaud del^{t} Printed by Engelmann, Graf Coindet & Co. M. Gauci lith

Sterculia versicolor

TEPHROSIA COCCINEA. Tab. 60.

Suffruticosa, erecta, ramis teretibus, flexuosis, foliisque subtùs niveo- et adpressè lanuginosis; foliis sessilibus, 2—3-jugis, foliolis omnibus cuneiformi-obovatis, retusis; racemis axillaribus, longè pedunculatis; dentibus calycis lanceolatis, acuminatis; staminibus diadelphis; stylo subtùs villoso; leguminibus linearibus pendulis.

Habitat ad ripam Irawaddi prope Yenangheun. Floret-fructusque profert sub pluviis, mensibus Augusto et Septembre.

Frutex erecta, ramosa, 2—3-pedalis. Rami teretes, flexuosi, uti petioli, pedunculi foliorumque pagina inferior densè vestiti villis lacteo-albis, longis, adpressis, mollissimis. Folia subapproximata, alterna, ferè omninò sessilia, impari-pinnata, 2—3-juga; *foliola* subcarnosa, exactè opposita, obovato-cuneiformia, retusa cum cuspidula, deorsùm attenuata, basi acuta, subsessilia, suprà glaberrima, glaucescentia, parallelè et obliquè multilineata, subtùs adpressè villosa, candida, nervis valdè numerosis et approximatis, parallelis, gracillimis costâque elevatis; terminale $1\frac{1}{2}$—2-pollicare, cætera deorsùm sensìm breviora. Stipulæ oppositæ, lanceolatæ, acuminatæ, aridæ, persistentes. Racemi axillares, solitarii, longè pedunculati, erectiusculi, foliis bis terve longiores, rarissimè ramulo uno alterove instructi, albo-villosi. Flores mediocris magnitudinis, pulcherrimè coccinei, brevè pedicellati, extùs villosi, suffulti *bracteolis* lanceolatis, valdè acuminatis. Calyx suburceolatus, basi obtusus, purpurascens, subbilabiatus, 5-dentatus; dentes lanceolati, valdè acuminati; duo inferiores parùm latiores. Vexillum subrotundum, retusum, reflexum, patens, unguiculare; *alæ* oblongæ, obtusæ, brevè unguiculatæ; *carina* compressa, acutiuscula, pallida, alis latior. Filamenta diadelpha, basi subarticulato-incurva. Ovarium adpressè villosum, absque disco; *stylus* incurvus, subtùs pilosus; *stigma* clavatum, villosum. Legumen lineare, cuspide subulatâ terminatum, 2—3-pollicare, compressum, planum, adpressè villosum, suturis convexiusculis. Semina 6—8, oblonga, fusca, nitida, caruncula umbilicali prominente, majusculo.

This is an exceedingly beautiful plant, differing from all the East Indian species with which I am acquainted, in the form of its leaflets, the milk-white hairs with which it is densely clad, and the elegant scarlet colour of the flowers. I have only found it in arid, sandy situations about the Petroleum Wells near Yenangheun, some miles inland from the left bank of the Irawaddi. It was brought thence into the Calcutta garden, where it flowers and blossoms freely.

Plate LX. Fig. 1. Flower. 2. The same dissected. 3. Carina.

VIBURNUM FŒTIDUM. Tab. 61.

Foliis ovato-lanceolatis, grossè obtusèque dentatis, suprà lucidis, subtùs pedunculisque pubescentibus; cymis terminalibus, sessilibus, fructiferis pedunculatis, involucris lineari-lanceolatis.

Habitat ad cacumen montis Toong Dong prope Avam. Floret et fructus profert maturos mense Novembri.

Frutex 6-pedalis, ramosa; *ramis* oppositis, *ramulis* teretibus, novellis, foliis junioribus et pedunculis pube dimidiato-stellatâ, canescente conspersis. Folia opposita, patentia, ovato-lanceolata, obtusa, vel acutiuscula, grossè, remotè et obtusè serrata, basi parùm attenuatâ integerrima, obsoletè 3-nervia, 2—3-pollicaria, suprà lævia, lucida, subtùs reticulata, ad axillas nervorum villosa. Petioli brevissimi, parùm pubescentes. Cyma parva, terminalis, sessilis, demùm pedunculata, hemisphærica, constans *pedunculis primariis* elongatis, centrali brevissimo, suffultis *involucro* inæquali, patenti, deciduo, foliolorum unguicularium, lanceolatorum vel linearium; *pedunculis secundariis* umbellulatis, brevibus. Flores valdè parvi, albi, brevè pedicellati. Calycis *lobi* minuti, ovati, ciliati. Corolla ovata, dentibus 5 ovatis, obtusis. Filamenta lævia. Antheræ parùm supra faucem elevatæ. Baccæ ovatæ, compressæ, parvæ, læves, nitidæ, primùm flavæ, punctis crebris rubris conspersæ, demùm coccineæ. Semen ovatum, compressum.

All the green parts emit a peculiarly unpleasant smell on being rubbed. The flowers are very small and inconspicuous; but the vivid red berries, which are produced in great abundance, give the shrub an interesting appearance.

Plate LXI. Fig. 1. Flower. 2. Calyx. 3. Corolla opened.

CYRTOTROPIS.

Calyx bilabiatus, labio superiore 1-dentato, inferiore 3-dentato. Corolla papilionacea, vexillo reflexo, basi 2-calloso; carinâ lineari-falciformi, longissima, adscendente, 2-phylla; alis cuneiformibus, abbreviatis, divaricatis. Stamina diadelpha. Legumen sessile, lineare, compressum, membranâ subspongiosâ, demùm solutâ intùs obtectum, isthmis pluribus multiloculare.

Classis Linnæana: *Diadelphia Decandria.*

Ordo naturalis: *Leguminosarum* tribus *Phaseoleæ*, Brown.

Habitus. Herba latè volubilis, radice perenni. Folia impari pinnata, 2-juga. Flores laxè racemosi, carnei. Legumen gracile, lineare, pendulum, polyspermum:

Genus *Dolicho* et *Kennedyæ* quodammodò affine, sed abundè differens calyce 4-dentato, carinâ 2-phyllâ, longissimâ, incurvâ, et alis abbreviatis, divaricato-patulis. Nomen imposui a *κυρτος*, *curvus*, et *τροπις*, *carina.*

CYRTOTROPIS CARNEA. Tab. 62.

Habitat in montibus altissimis Napaliæ Sheopore et Chandaghiry; etiam in convalli admodùm elevata Chitlong dicta. Floret sub pluviis, mensibus Junio et Julio; legumina matura Octobre.

Planta altè volubilis, surgens e radice fibrosa, vix non perenni. Caulis prælongus, *ramos* emittens gracillimos, pallidè rubicundos, teretes, pilosulos. Folia magna, patentia, palmaria, remota, alterna, petiolata, impari-pinnata, 2-juga. Petiolus teres, basi parùm incrassatus, parcè pilosus, 3-pollicaris, suprà levitèr sulcatus; *rachis* inter pinnas 1½—2-pollicaris, subarticulata, sæpè purpureo-colorata. Pinnæ oppositæ, ovato-oblongæ, cuspidato-acuminatæ, 4—6-pollicares, integerrimæ, membranaceæ, inæquilaterales, basi nempè deorsùm convexiores, præcipuè in jugo infimo; *terminalis* reliquis parùm major, æqualis; suprà saturatè virides, a pilis aliquot sparsis scabriusculæ, subtùs pallidæ, costâ elevatâ nervisque gracilibus, pilosulis, inferioribus oppositis, reticulato-venosæ, venis nunc coloratis. Petioli *partiales* breves, cylindrici, rugosi. Stipulæ parvæ, lanceolatæ, acutæ, adpressæ, pilosulæ, deciduæ. Racemi axillares solitarii, nutantes, folia longitudine subæquantes vel iisdem parùm breviores, *pedunculo* gracili, tereti, pilosulo, nunc colorato. Flores magni, sparsi, carnei, insidentes *pedicellis* brevibus, utrinque articulatis, unguicularibus. Calyx cylindricus, basi suffultus *bracteolis* binis, linearibus, deciduis, fauce bilabiatâ 4-dentatus: *dentes* membranaceo-marginulati, ciliati; superior lato-ovatus, acutus; inferiores lanceolati, angustiores. Vexillum patens, ovatum, retusum, suprà convexum radiatim striatum, basi callis duobus parvis, transversis, ungue brevi, angusto. Alæ vexillo carinâque duplò breviores, divaricato-patulæ, subrecurvatæ, cuneatæ, obtusæ, ungue gracili, longiusculo. Carina angusto-linearis, obtusa, adscendens, arcuato-incurva, pollicaris, vexillo parùm longior, 2-phylla; foliola conniventia, longè unguiculata. Stamina 10, longa, diadelpha, adscendentia, apice incurva; filamento libero extrorsùm subspirali. Ovarium lineare, pubescens; *stigma* parvum, convexiusculum, stylusque glabra. Legumen gracile, compressum, lineare, angustum, 6-pollicare, levitèr torulosum, reticulato-venulosum, glabrum, mucrone brevi, recto terminatum, polyspermum, intùs obtextum membranâ tenuissimâ, subspongiosâ, fuscâ, isthmos inter semina formante, ad dehiscentiam solutâ et variè ruptâ. Semina 16—20, oblonga, obtusa, parùm compressa, fusca, lævia, glaucescentia et opaca, funiculo brevissimo instructa. Cotyledones crassiusculæ. Radicula brevis, inflexa.

Plate LXII. Fig. 1. Flower dissected. 2. Pods.

PHASEOLUS ROSTRATUS. Tab. 63.

Perennis, pilosiusculus; foliolis ovatis, acutis; racemis axillaribus, longè pedunculatis, paucifloris; alis variè tortis, carinâ longissimè rostratâ, spirali.

Phaseolus alatus, *Roxb. Hort. Beng. p.* 54, *haud Linn.*

Katu Paeru, *Rheed. Malab. vol.* 8. *p.* 75. *tab.* 42.

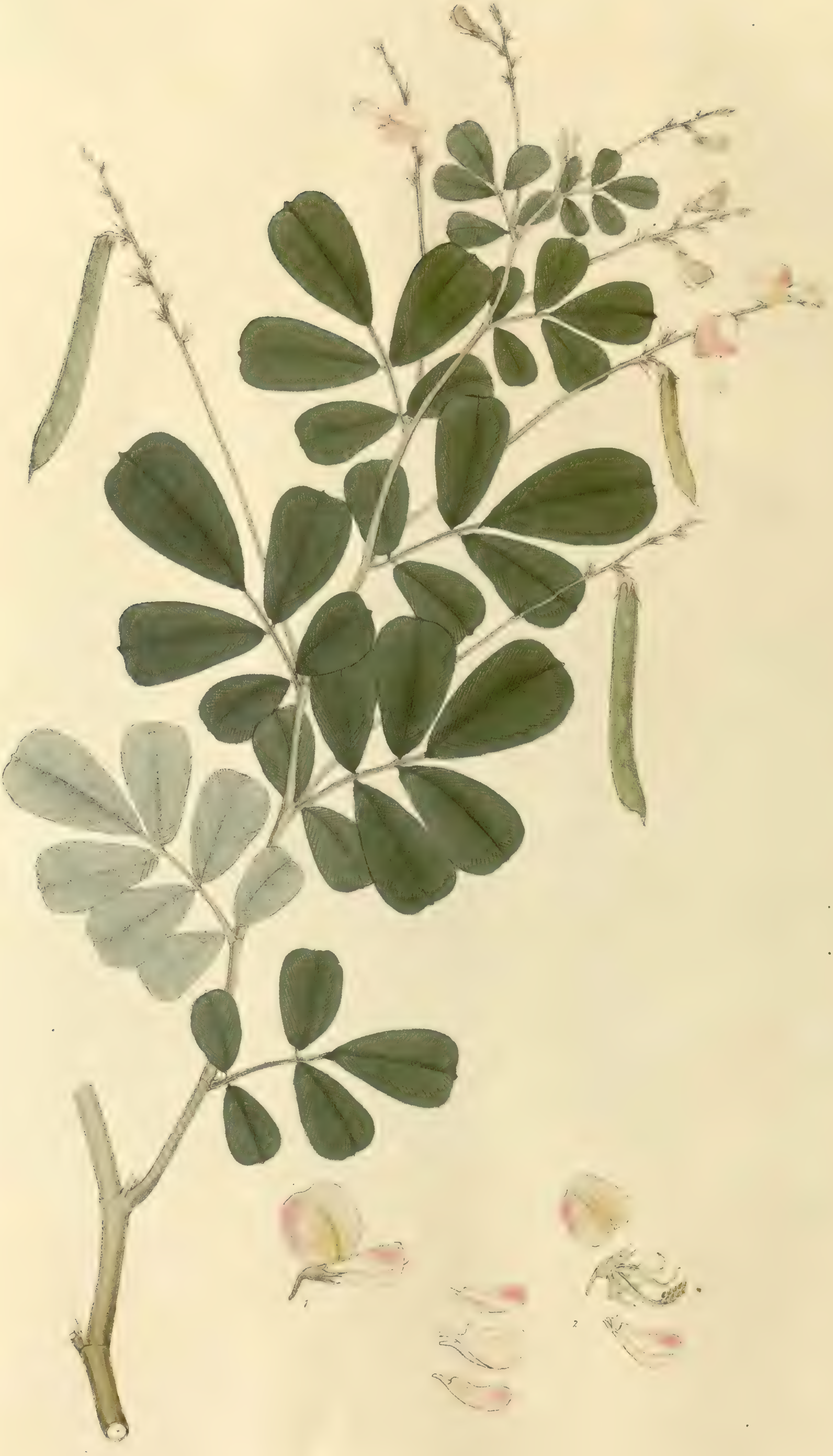
Habitat in Bengala, montibusque contiguis, etiam in montibus ripæ Irawaddi, ad Paghamew et Prome. Floret leguminaque profert mensibus Octobre—Decembre.

Nomen Bengalense: *Bun-barbuttee.*

Planta ramosa, volubilis, pilis paucis conspersa, 2—3-pedalis. Caulis ramique teretes, graciles. Folia remota, petiolata. Foliola ovata, acutiuscula, 3-pollicaria, lateralia extrorsùm gibbosa, subtùs reticulato-venulosa, pilosula. Petiolus gracilis, canaliculatus, foliola æquans; *partiales* brevissimi. Racemus axillaris, longè pedunculatus, pauciflorus. Pedunculus petiolum æquans, fructifer elongatus, abiens in *rachin* 2-pollicarem, ad insertionem florum tuberculatam. Flores magni, speciosi, geminati, brevè pedicellati, dilutè violacei. Calyx bilabiatus, labio superiore ovato, obtuso, integro; inferiore acutè 3-dentato. Vexillum suborbiculatum, retusum, brevè unguiculatum. Carina longissimè rostrata, apiçe bis terve spiraliter convoluta. Alæ magnæ, oblongæ, variè flexæ et tortæ, apice parùm patentes, venis albidis, dichotomis ornatæ. Filamentorum pars libera capillacea, longa. Ovarium sericeum, disco majusculo, carnoso, irregulariter et acutè 5-dentato basi cinctum. Legumen pendulum, planum, lineare, incurvo-cuspidatum, arcuatum, parùm torulosum, ferè glabrum, 5-pollicare, polyspermum. Semina ovata, fusca.

This beautiful plant comes certainly near to Linneus's *Phaseolus alatus*, but appears to be sufficiently distinct by its less spreading alæ, and the curved pods. The flowers are by far the largest of the East Indian species. According to Dr. Roxburgh's manuscript the lower part of the plant is perennial.

Plate LXIII. Fig. 1. Flower. 2. Alæ and carina *in situ*. 3. The same detached. 4. Vexillum. 5. Stamens. 6. Calyx and pistil.

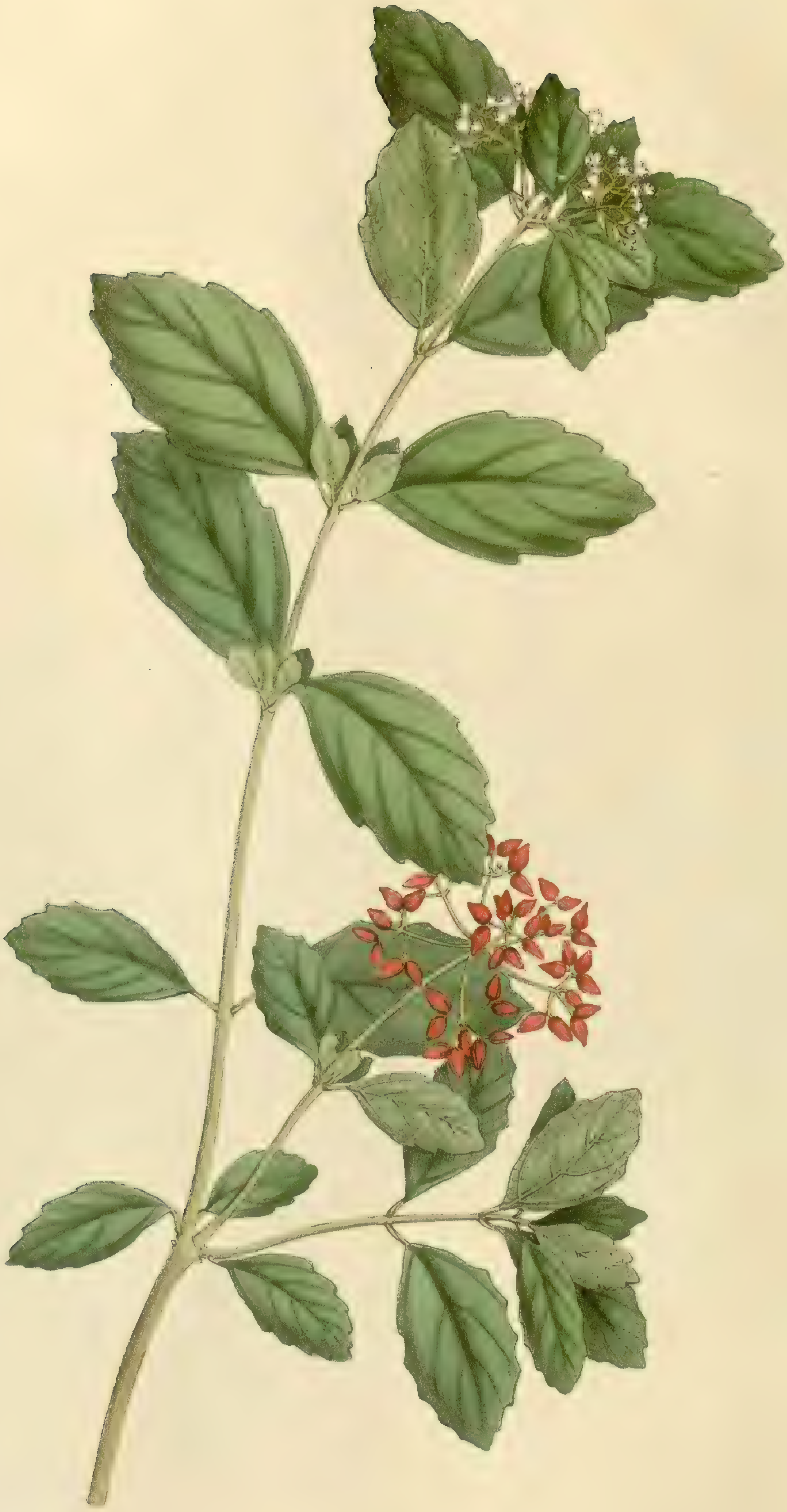


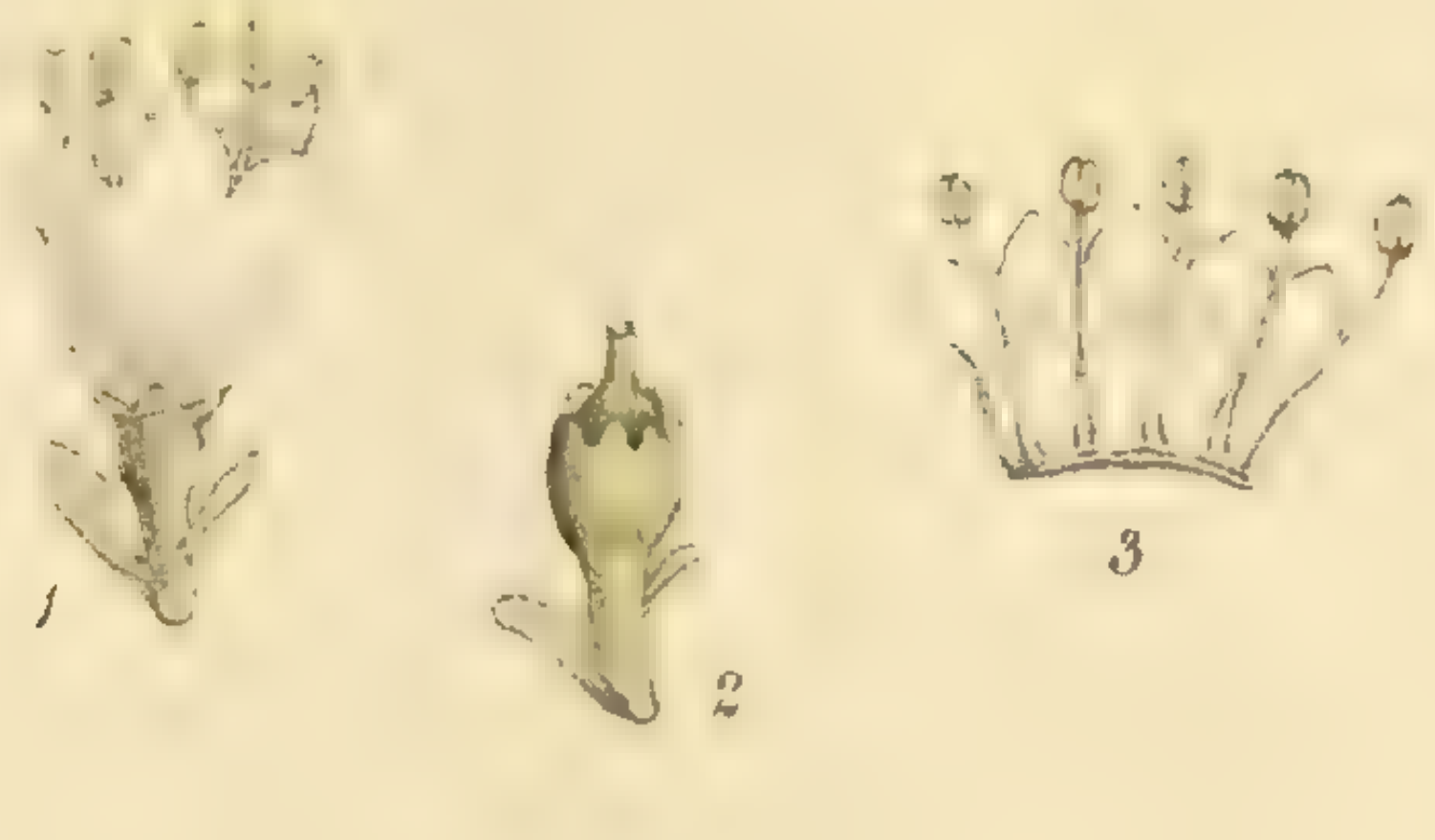
Vishnupersaud del^{t}

Printed by Engelmann Graf, Coindet & Co.

M Gauci lith

Tephrosia coccinea.





Vishnupersaud del.^t Printed by Engelmann, Graf, Coindet & Co. Gauci lithog

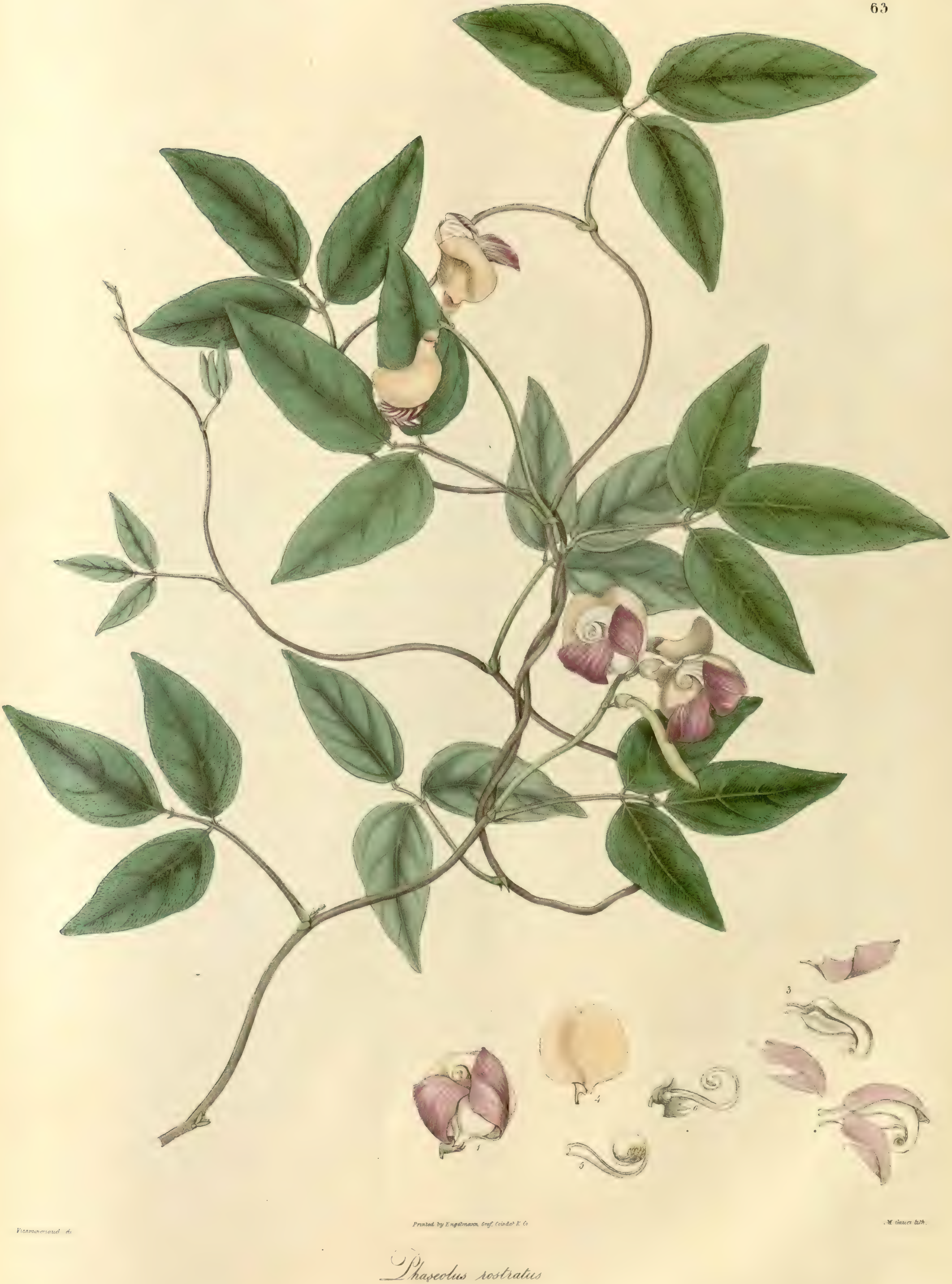
Viburnum foetidum

orachand del.

Printed by Engelmann Graf Coindet & Co

M. Gauci lith

Cyrtotropis carnea



Vishnupersaud del.
Printed by Engelmann, Graf, Coindet & Co
M. Gauci lith.

Phaseolus rostratus

ERIOLÆNA CANDOLLII. Tab. 64.

Foliis ovato-cordatis, valdè acuminatis, integris, subtùs cano-tomentosis; floribus paniculatis; involucri 3-phylli foliolis oblongo-linearibus.

Legi in montibus Prome ripæ Irawaddi, floriferam et fructigeram mense Decembre.

Arbor magna, ramosa, trunco alto et recto. Ramuli teretes, cinerei a tomento stellato, minuto, in novellis copioso. Folia sparsa, patentia, subapproximata, ovato-cordata, in acumen gracile attenuata, inæqualitèr et obtusè crenato-dentata, marginibus præcipuè adultiorum subsinuato-crispatis, sinu basis acuto, lobis rotundatis, coriacea, 5-pollicaria ad palmaria; suprà glabra, subtùs cano-tomentosa, 7-nervia, transversè et parallelè venosa; *floralia* breviùs petiolata, reliquis multò minora; juniora utrinque tomentosa. Petioli teretes, graciles, folio dimidiò vel tertiò breviores, tomentosi, utrinque cylindraceo-intumescentes. Stipulæ parvæ, oppositæ, lanceolatæ, aridæ, deciduæ. Inflorescentia terminalis, subpaniculata, parùm tomentosa, constans *pedunculis* axillaribus foliorum floralium, subelongatis, apice gerentibus *flores* aliquot magnos, racemosos, alternos, flavos, suffultos *pedicellis* pollicaribus, teretibus. Bracteæ raræ, sparsæ, foliolis involucelli similibus, caducæ. Calyx profundissimè 5-partitus, subcarnosus, lateraliter involucratus; *laciniæ* oblongo-lanceolatæ, acuminatæ, patenti-reflexæ, ultra pollicem longæ, extùs densè tomentosæ, intùs fulvo-sericeæ, præsertim ad basin, ubi notatæ foveolis 2 oblongis, lævibus, mucosis. Involucrum calycis basin extùs semisuffultiens, patentissimum, lacinias illius longitudine ferè æquans, subcarnosum, utrinque tomentosum, 3-phyllum; *foliola* oblongo-linearia, acuta, pectinato-dentata, ferè pinnatifida, dentibus angustis, distantibus, subglanduloso-obtusis; intermedium parùm latius. Petala 5, cum laciniis calycinis alternantia, interque has reflexa, pollicaria, ungue brevi, latiusculo, curvo, intùs villoso instructa, limbo oblongo, obtuso, levitèr retuso, unguiculari. Tubus *filamentorum* brevis, membranaceus, mox supra basin antheriferus. Antheræ oblongæ, biloculares, flavæ, brevè stipitatæ, densè multiseriales, omnes fertiles. Ovarium ovatum, sericeo-villosum, 10-loculare; *ovulis* pluribus, biseriatis, axi perforatæ insertis. Stylus filiformis, glaber, staminibus longior. Stigma 8—10-lobum, exsertum, lobis teretibus, stellatim patentibus. Capsula lignosa, ovata, acuminata, rugoso-scabra, tomentosa, 2-pollicaris, 10-sulcata, 10-locularis, 10-valvis: *valvulæ* angustæ, lineari-oblongæ, acuminatæ, intùs ferrugineæ, lævissimæ, mediò septiferæ; *septo* lato, margine interiore densissimè sericeo-villoso. Semina circitèr 8 in singulo loculo, angulo ejusdem interiori duplici serie adfixa, totidem abortivis, minutis sæpiùs intermixta, ovata, imbricata, fusca, lævia, rugosula, dorso convexiora, basi subtruncata, vertice desinentia in *alam* lanceolatam, membranaceam, attenuatam, acutam, semiuncialem, margine exteriore recto, latiusculo. Embryo lacteus, erectus, *perispermio* modicè crasso, carnoso inclusus. Radicula cylindrica, longiuscula. Cotyledones planæ, latæ, profundè 2-lobæ, obtusæ, parùm plicatæ.

This handsome tree differs entirely from the only species, which has hitherto been described, namely *Eriolæna Wallichii* of Professor DeCandolle, the founder of the genus. Its leaves and inflorescence are covered with a thin stellate and grey tomentum, whereas in that species they are densely hairy. Its leaves are entire, and long-acuminate, the flowers disposed in a terminal panicle, and the leaflets of the involucre linear-oblong; in that species the former are lobed, and the latter axillary, besides being much larger, and furnished with broader and fringed involucres.

Plate LXIV. Fig. 1. Flower before opening. 2. Calycine lobe of the same, showing the three glands at the inside of the base. 3. Flower. 4. The same dissected. 5. Column of the stamens opened. 6. Pistil. 7. Capsules. 8. The same opened. 9. A detached valve.

BOOTTIA.

Flores spathacei, dioici. Perianthium 6-partitum, laciniis 3 interioribus petaloideis. Spatha mascula multiflora, floribus longè pedunculatis, exsertis. Stamina 12. Styli 3. Stigmata biloba. Spatha fœminea 1-flora. Ovarium inferum, multiloculare, polyspermum. Styli staminaque sterilia 9.

Classis Linnæana: *Diœcia Dodecandria.*

Ordo naturalis: *Hydrocharideæ*, Brown.

Herba elegantissima aquatica, limo adfixa, acaulis, gregaria, glabra. Folia quædam submersa, longa, lanceolata, subsessilia; alia natantia, longè petiolata, cordata, multinervia. Flores magni, basi spathâ involuti, scapo longo supra aquæ superficiem elevati. *Hydrocharidi*, *Stratioti* et *Damasonio* valdè affinis; prior differt spathâ masculâ diphyllâ, fœmineâ nullâ; posteriora genera distincta sunt spathis unifloris, hermaphroditis.

Quum *Boottia* a celeberrimo Bigelow condita a *Potentillis* haud distingui possit, aliud constitui genus in honorem Francisci Boott, Americani, M.D., botanici ardentissimi et peritissimi, amici dilectissimi, non minùs animi probitate quàm scientiarum cultu, et morum suavitate egregii.

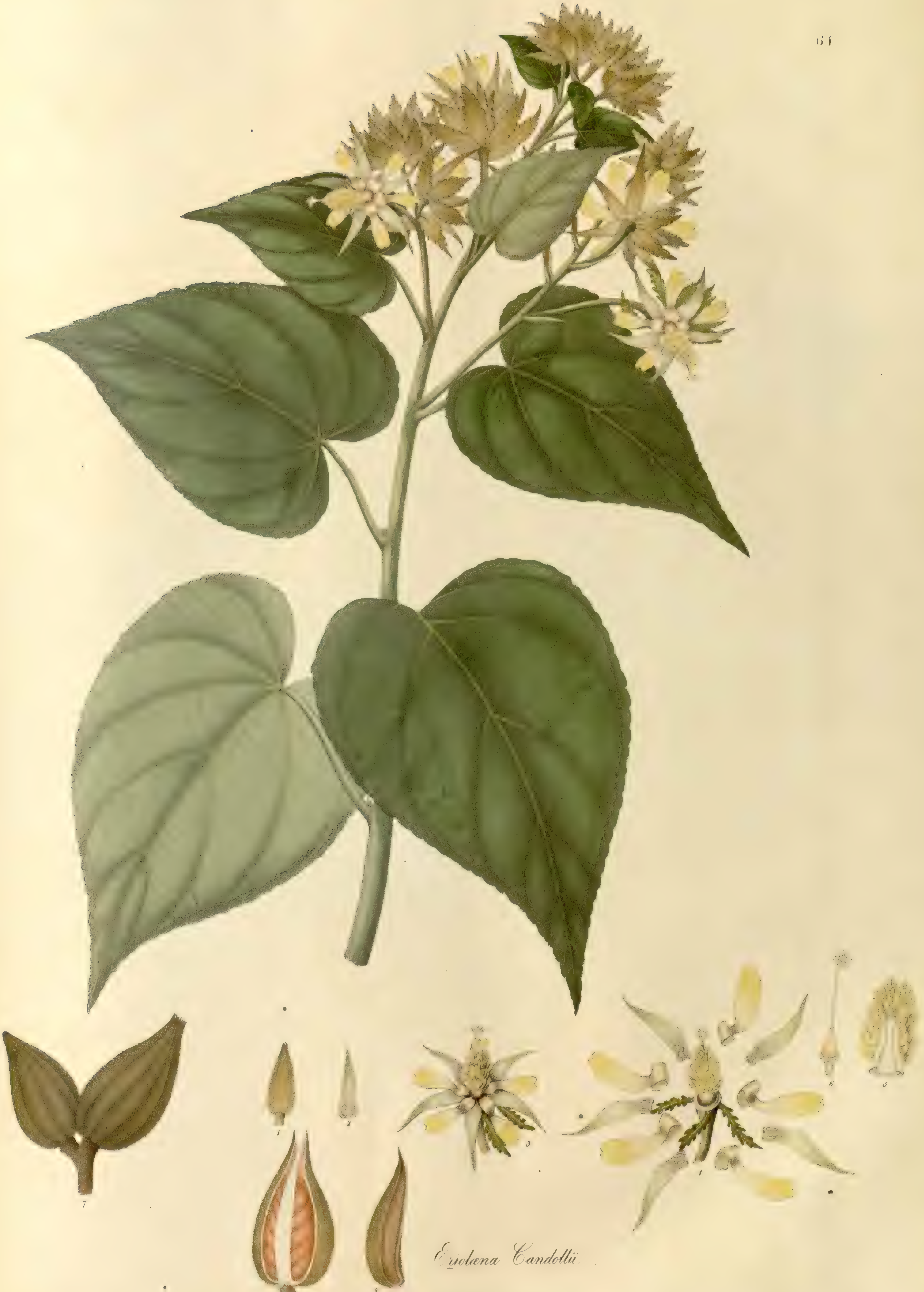
BOOTTIA CORDATA. Tab. 65.

Habitat in aquis stagnantibus ripæ Irawaddi prope Avam, montiumque vicinarum. Floret mensibus Septembri —Novembri.

Planta acaulis, carnosa, glabra, limo adfixa, maximâ parte submersa, gregaria, 2—3-pedalis. Radix constans fibris copiosis, succulentis, simplicissimis, 2—6-pollicaribus, intùs albis, epidermide lævi, pallidè ferrugineâ obtectis, ex area plantæ basilari, plana, orbiculari, pollicari undique ortis. Folia numerosa, basibus petiolorum latis, imbricantibus caulem brevem, crassum mentientia, vernatione marginibus utrinque involutis; duplicis indolis. Quædam nempè *submersa*, situ exteriora, erecto-patula, oblongo-lanceolata, acuta, undulata, sub lente minutìm et creberrimè crenulato-ciliata, utrinque, præcipuè deorsùm attenuata, tenuia et membranacea, flaccida, atroviridia, lævia, utrinque lineolis fuscis, latiusculis, rectis, transversis inscripta, 8—12-pollicaria, suprà lucida, subtùs opaca, costâ valdè elevatâ et crassâ in *petiolum* desinente brevissimum, pollicarem, à basi folii decurrente marginatum, nervisque paucis, remotis, capillaceis, suboppositis, valdè obliquis. Alia *folia natantia*, illis copiosiora, longè petiolata, ovato- vel oblongo-cordata, obtusa vel subacuta, integerrima, 4—6-pollicaria, coriacea, lævia, sinu basis profundo, angusto, fundo parùm dilatato, lobis pollicaribus, rotundis, semi-imbricantibus; plana, suprà atroviridia, lucida, subtùs pallidiora, opaca, 7—9-nervia, nervis gracilibus, indivisis, ex apice petioli plano-dilatata usque ad apicem folii ferè parallelè excurrentibus, exterioribus utrinque duobus juxta curvaturam marginum loborum basis arcuatis, cæteris rectis, prominentibus, intermedio paullò majore, carinato; nervis aliis capillaceis, obsoletissimis, punctisque minutis, elevatis, longitudinalitèr seriatis interjectis; venis transversis, parallelis, numerosis et approximatis, vix elevatis, fuscis. Petioli carnosi, crassi, erecti, 3-angulares, suprà latiusculi et plani, subtùs convexi et carinati, angulis aculeis minutis, hyalinis asperis; pedales ad bipedales, basi membranaceo-dilatati et imbricantes. Scapi 5 vel 6 in singula planta ex sinubus petiolorum solitarii, erecti, cylindrici, carnosi, petiolos longitudine æquantes, hisce tamen crassiores, nudi; basi graciles, subcomplanati, albicantes; sursùm sensim dilatati, ad insertionem spathæ dilatato-complanati, sæpè digitum minimum crassi. Inflorescentia terminalis, supra aquæ superficiem elevata, erecta, spathâ monophyllâ inclusa, dioica. Spatha mascula multiflora, compressa, ovato-cordata, vel oblonga, hinc convexa, indè plana, vel concaviuscula, 2—3-pollicaris, carnosa, nervosa, punctis innumeris, elevatis, conicis, seriatim dispositis aspera, intùs pallida, lævis, marginibus compressis, porrectis, ore contracto, parùm compresso, multi-dentato, dentibus inæqualibus, ovatis, acutis, erectis. Flores 20—30, magni, candidi, centro lutescentes, infundibuliformi-patentes, diametro 1½-pollicares, longissimè pedunculati supraque spathæ os elevati. Pedunculi graciles, cylindrici, albi, læves, sursùm levitèr rubescentes, spathâ dimidiò vel duplò, interdum triplò longiores, fundo ejus densè inserti, apice parùm incrassati. Perianthium 6-partitum: *laciniæ* 3 *exteriores* oblongo-lanceolatæ, acutæ, planæ, unguiculares, erectiusculæ, pallidè lutescentes, venulosæ, nervo dorsali obsoleto apiceque viridescentibus; *interiores* istis alternantes duplòque majores, petaloideæ, tenuissimè membranaceæ, obovatæ, rotundato-obtusæ, integerrimæ, candidæ, juxta nervos 8 capillaceos elegantèr plicatæ, deorsùm angustatæ, planæ et lutescentes, æstivatione variè plicatæ et a laciniis exterioribus imbricantibus inclusæ. Stamina 12, erecta et parallela, duplici serie oppositâ disposita; 6 nempè exteriora, lacinias exteriores longitudine æquantia; 6 interiora, hisce opposita, dimidiò longiora. Filamenta distincta, carnosa, filiformia, levitèr complanata, lutescentia, pilis mollissimis, multis patentibus ciliata. Antheræ magnæ, glabræ, carnosæ, erectæ, oblongæ, utrinque longitudinalitèr dehiscentes, polline copioso, aureo, globulari; exteriores filamentis ferè longiores; interiores iisdem breviores. Ovaria nulla. Styli 3, filiformes, pilosi, erecti, filamentis parùm longiores, *glandulis* 3 centralibus, carnosis, brevibus, sessilibus, ovatis, flavis, laciniis perianthii interioribus oppositis (*staminibus sterilibus ?*) alternantes. Stigmata profundè biloba, stylos longitudine æquantia, linearia, obtusa, levitèr divergentia, lutea, basi parùm pilosa. Spatha fœminea in distincta planta, masculâ multò minor, 1-flora, oblonga, irregularitèr 3- vel 4-angulata, glabra, aut punctis minutis, seriatis asperula, sursùm vix angustata, ore valdè inæqualitèr dentato, dentibus lanceolatis, acutis. Flos solitarius, sessilis. Perianthium epigynum, 6-partitum, patens; *laciniæ* omninò ut in flore masculo. Ovarium inferum, cylindraceo-carnosum, oblongum, læve, nitidum, sursùm vix angustius, pollicare vel ultrà, spathâ ferè omninò inclusum et cavitatem ejus totam replens, pseudo-multiloculare, polyspermum, placentis 9 ad 15 parietalibus, liberis, ad axin excurrentibus, utrinque ovula plurima minuta, globulosa adfigentibus. Styli 9, aliquandò 15, graciles, filiformes, minutìm papillosi, erectiusculi. Stigmata ut in flore masculo sed angustiora, divergentia. Filamenta sterilia tot quot styli, hisque intermixta, nunc fasciculata, filiformia, glabra, nuda. Glandulæ centrales 3, carnosæ, ovatæ, crenulatæ, brevissimæ.

This is one of the most charming water plants with which I am acquainted. It grows in vast quantities in ponds, sometimes occupying nearly their whole surface. The roots are loosely attached to the bottom, while the rest of the plant is partly submerged and partly floating or erect above the water. The plant is two or three feet high, and consists of a great number of leaves and scapes, which are of a fleshy consistency, and have a dark-green colour. The leaves are of two sorts. Those which are submerged are almost sessile, oblong-lanceolate, waved, nearly a foot long, of a thin and membranous texture, elegantly variegated on the underside with numerous short, parallel, transverse, brown bands or stripes. The other leaves are supported on long petioles, and float on the surface of the water; they are peculiarly symmetrical, of an ovate-cordate form, perfectly entire, with from seven to nine parallel nerves; the underside is beautifully decorated with numerous short, brown veins between the nerves. The spathes vary in size and form; the males are many-flowered and covered with innumerable elevated points, arranged in longitudinal lines. The female spathes are smaller and smoother, and always one-flowered. The flowers are large, white, with a yellow tinge in the centre.

All the green parts are eaten by the Burmese as pot-herbs, for which purpose they are collected in great quantities, and carried to the market at Ava, in the vicinity of which capital the plant is found in ponds, flowering profusely



Eriolæna Candollii.

Vishnupersaud del.

Printed by Engelmann Graf Coindet & Co

M Gauci lith.

Boottia cordata

Vishnupersaud del.

Printed by Engelmann Graf Coindet & Co

M. Gauci lith.

in the month of September. I also met with it towards the summit of the mountains called Toong Dong, distant about twenty-five miles from Ava, in flower in November.

It affords me very great pleasure to be able to dedicate so fine a plant to Dr. Boott, a zealous and excellent botanist, whom I am proud to number among my best friends. I am confident also that the worthy Professor Bigelow, whose genus *Boottia* has been found to be too nearly allied to *Potentilla* to admit of being separated from it, will participate in my feelings on this occasion.

Plate LXV. Fig. 1. Male spathe and flower opened. 2. Stamens. 3. Two of these detached and enlarged. 4. Sterile styles and central glands. 5. A small spathe divided horizontally. 6. Spathe containing the female flower. 7. The same opened. 8. Ovarium enlarged and cut transversely. 9. Style.

JUSTICIA VENUSTA. Tab. 66.

Fruticosa, foliis ovatis, acuminatis, crenatis, per petiolum latè decurrentibus, pubescentibus; paniculâ amplissimâ terminali, longissimè pedunculatâ; floribus fasciculato-racemosis, tubulosis, faucis bilabiatæ laciniis linearibus; antheris exsertis, carnosis, loculis gracillimis parallelis; capsulâ lineari, polyspermâ.

Habitat in montibus *Pundua* dictis, Bengalæ orientali confinibus, indeque anno 1825 in hortum Calcuttensem introducta. Tempus florendi Septembri et Octobri; capsulæ maturæ versus finem anni.

Frutex 3—4-pedalis, erecta, parcissimè ramosa. Caulis digitum ferè crassus, cortice cinerascente indutus. Rami breves, obsoletè quadrangulares, supernè pubescentes. Folia opposita, approximata, decussatim patentissima, ovata, attenuato-acuminata, obsoletè crenulata, basis lateribus rotundatis, medio attenuato et per petiolum decurrente, 5—7-pollicaria, membranacea, utrinque marginibusque pilis brevibus, hyalinis asperula, suprà atro-viridia, obliquè rugosa, subtùs costâ gracili, elevatâ, nervis numerosis, parallelis, obliquis, interque hos venis capillaribus, transversis. Petioli 2—3-pollicares, sulcati, sursùm propter basin folii decurrente latiusculè marginati. Panicula terminalis, lato-ovata, ramosa, patentissima, longissimè pedunculata. Pedunculi graciles, elongati, pallidi, sulcis duobus oppositis, levibus notati, pubescentiâ copiosâ, glanduloso-capitellatâ obsiti; *universalis* semipedalis, pedalis, usque ad bipedalem; *partiales* semipedales ad pedales, ferè filiformes. Bracteæ infra ramificationes primarias oppositæ, foliaceæ, lineari-lanceolatæ, pollicares; reliquæ lineari-subulatæ, breves. Flores pulcherrimi, atro-purpurei, remotè fasciculati, subsessiles, dispositi in racemos elongatos, graciles. Calyx glanduloso-pilosus, parvus, 5-fidus; *laciniæ* lineares, acuminatæ. Corolla tubulosa, tripollicaris, extùs pubescens; *tubus* gracilis, 1½-pollicaris, basi pallidus, apice subventricoso-dilatatus; *limbus* 2-labiatus, tubo quadruplò brevior, labio superiore recto, levitèrve adscendente, 2-fido; inferiore patente, 3-fido: laciniis omnibus linearibus, obtusiusculis. Stamina 2, supra faucem perviam, puberulam parùm elevata, glabra; *filamenta* capillacea, brevissima; *antheræ* oblongæ, carnosæ, parùm divergentes, labio corollæ superiore dimidiò breviores, anticè 2-loculares, *loculis* angustissimis, gracillimis, æqualibus. Capsula gracilis, pallidè ferruginea, lævis, linearis, subtetragona, utrinque profundè sulcata, polyspermâ. Semina parva, plana, ovata, minutim rugosa.

This is one of the loveliest species of *Justicia* with which I am acquainted; remarkable on account of its large and spreading inflorescence, which is lifted above the uppermost leaves by means of a long and slender common peduncle. The flowers are tubular, and of a deep purple colour, contrasting in a very striking manner with the dark-green and large foliage. I had the satisfaction of bringing a growing plant to England in 1828, which was presented by the Honourable Court of Directors of the East India Company to the Horticultural Society of London, in whose rich garden at Chiswick it has lately blossomed.

Plate LXVI. Fig. 1. Flower. 2. Calyx. 3. Corolla. 4. Stamen. 5. Anther divided transversely.

CIRRHOPETALUM Wallichii. Tab. 67.

Petalis sepaloque supremo oblongis, retusis, muticis; foliis oblongo-lanceolatis, obtusis, scapi longitudine. *Lindl. Orchid. p.* 59.

Cirrhopetalum Wallichii, *Lindl. loc. cit.*

Habitat super rupibus montis Sheopore aliarumque in Napalia, florens Septembri.

Plantula gregaria, omnibus partibus lævis. Caulis gracillimus, repens, ramosus, *radiculas* longas, divisas emittens. Pseudobulbi ovati, nudi, læves, ½-pollicares, 1-phylli, subapproximati. Folium erectum, oblongum, obtusum, levissimè retusum, subsessile, basi acutum, 3-pollicare, crassum, coriaceum et rigidum, planum, suprà atro-viride, lucidum, levitèr canaliculatum, subtùs parùm carinatum, pallidum, punctulatum. Scapus e basi pseudobulbi, erectus, tenerrimus, filiformis, teres, 3-pollicaris, *bracteis* munitus paucis, remotis, lanceolatis, basi subvaginantibus. Flores horizontalitèr patentes, parùm ultra pollicem longi, fusci, striis rubescentibus ornati, *pedicellis* unguicularibus, subclavatis suffulti, 4—8 dispositi in umbellam terminalem, subdimidiato-secundam. Bracteola linearis infra singulum pedicellum, ipsoque paullò brevior. Sepalum *supremum* oblongo-ovatum, obtusum, concavum, lineas 4 longum, 3-striatum; *lateralia* longissima, difformia, lineari-lanceolata, in acumen longum attenuata, pollicaria, striata, basi concavâ infra basin columnæ connata, indè torta, marginibus exterioribus introrsùm spectantibus, sibi invicem parallelis et contiguis, dein solutis. Petala sepalo dorsali similia, flava, basi sanguinea, erecta, columnæ parallela. Labellum brevissimum, inclusum, ovatum, plicatum, acutum, articulatione *columnæ* conicæ, 2-dentatæ basi valdè elongatæ adfixum, læve, nudum. Anthera ovata. Massæ pollinis 4, inæqualia, per paria agglutinata in pollinia 2 plana, obliquè sulcata.

Plate LXVII. Fig. 1. Flower dissected.

OTOCHILUS FUSCA. Tab. 68.

Pseudobulbis elongatis, fusiformibus; foliis lineari-lanceolatis; bracteis linearibus; sepalis petalisque obtusis. *Lindl. Orchid. p.* 35.

Otochilus fusca, *Lindl. loc. cit.*

Habitat parasitica supra arborum truncis in montibus Napaliæ, ubi floret versus finem pluviarum.

Planta longè serpens, omnibus partibus lævis. Pseudobulbi plures, oblongo-clavati, vel fusiformes, graciles, flavo-virides, digitum minimum crassi, pollices 3—8 longi, basi contractâ muniti *squamis* paucis, ovatis, aridis, subdistichè imbricantibus, ibique emittentes *radiculas* fasciculatas, fibroso-ramosas, infra apicem 2-phyllam catenulatim connexi, caulem mentientes subdichotomum, pedalem, 2-pedalemve. Folia lineari-lanceolata, attenuato-acuminata, basi acuta petioloque brevissimo, canaliculato suffulta, levitèr divergentia, coriacea, plana, 5—8-pollicaria, suprà atroviridia, striata, subtùs glaucescentia et punctata, costâ elevatâ. Racemus gracilis, planus, oblongus, laxus, nutans, pedunculatus, lateralitèr ex apice pseudobulbi progrediens, extrafoliaceus, 6-pollicaris, constans *floribus* fragrantibus, gracilibus, approximatis, ex albo dilutè roseis, divaricato-patentissimis, alternantibus, distichis. Pedunculus teres, 2-pollicaris, indutus squamis lanceolato-oblongis, acutis, pollicaribus, subventricosis, alternis, imbricantibus; apice nudus. Rachis recta, teres. Pedicelli breves, subclavati, rubri, suffulti *bracteâ* lanceolato-lineari, canaliculatâ, unguiculari, pedicello duplò longiori, deciduâ. Sepala petalaque linearia, obtusa, parùm canaliculata, subæqualia, ferè pollicaria, patentissima. Labellum lineari-ligulatum, unguiculare, deflexum, nudum, planum, basi brevissimâ, rubicundâ, truncato-subtubulosâ, intùs bicarinatâ, imam columnam amplectente. Columna gracillima, rubra, erecta, sepalorum longitudine, semiteres, apice clavato-incrassatâ, incurvâ, anticè in ligulam obsoletam productâ. Anthera terminalis, conica, mobilis, decidua. Massæ pollinis 4, obovatæ, ope fili valdè elastici, granulosi per pares connexæ.

Plate LXVIII. Fig. 1. Flower. 2. The same dissected. 3. Anther. 4. Pollen-masses. 5. The same detached forcibly from each other, in order to show the elastic thread by which they are united.

BOLBOPHYLLUM CYLINDRACEUM. Tab. 69.

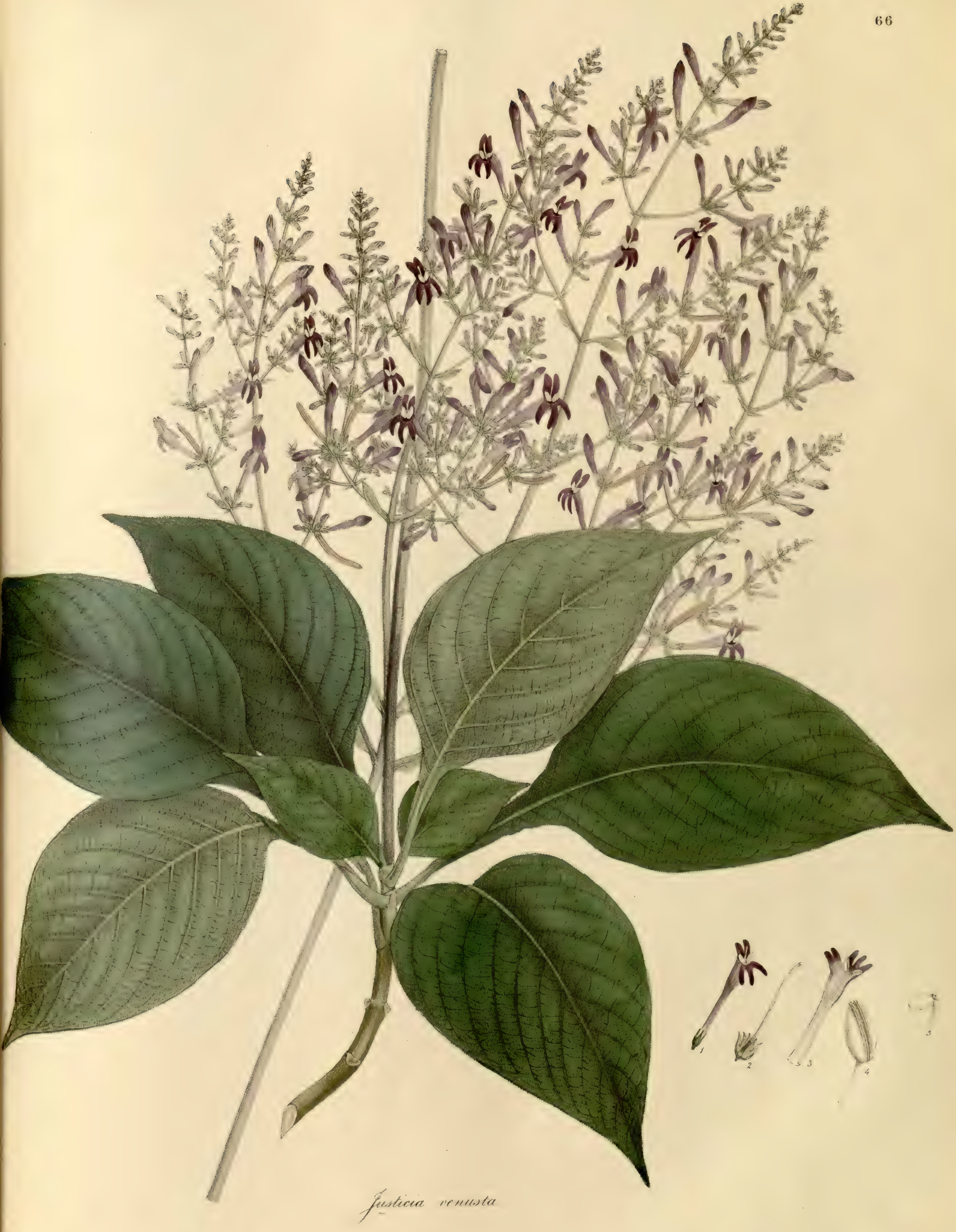
Pseudobulbis nullis; foliis solitariis, oblongo-lanceolatis, petiolatis, scapis duplò brevioribus; spicâ densissimâ, cylindraceâ, basi spathâ involutâ; sepalis lateralibus semiovatis, planis, collateralibus: supremo minore; petalis minimis, ovatis, obtusis; labello ovato, obtuso. *Lindl. Orchid. p.* 54.

Bolbophyllum cylindraceum, *Lindl. loc. cit.*

Habitat ad cacumen montis Sheopore, arborum parasiticum. Floret Octobre.

Planta cæspitosa, erecta, rigidiuscula, lævis. Radix constans fibris densis, simplicibus. Caulis nullus. Folia plura, oblonga, erecta, petiolata, utrinque acuta, plana, basi levitèr canaliculata, coriacea et firma, 6—8-pollicaria, suprà atro-viridia, lucida, subtùs pallida, costâ crassâ, nervis capillaceis, parallelis. Petiolus crassus, profundè canaliculatus, 2-pollicaris, basi circumdatus *squamis* aliquot laxè imbricantibus, lanceolatis, aridis, persistentibus, ipsum longitudine subæquantibus. Scapi pauci, graciles, teretes foliis longiores, pennam columbinam crassi, pedales et ultrà, basi medioque bracteâ oblongâ, acuminatâ, subvaginante, aridâ, unguiculari vel pollicari. Spica terminalis, cylindrica, 5-pollicaris, digitum minimum ferè crassa, basi involuta *bracteâ* spathaceâ, oblongo-lanceolatâ, pollicari vel 2-pollicari, aridâ, fuscescente. Flores parvi, undique densissimè imbricantes, pallidè flavi, brevissimè pedunculati, suffulti *bracteolâ* brevi, lineari. Sepalum anticum situatione inferius, ovatum, subfornicatum, apice acutâ subrecurvum; *lateralia* isto triplò majora, semiovata, basi latâ infra columnam connata, plano-patentia, obtusa, marginibus interioribus parallelis. Petala valdè parva, lanceolata. Labellum situatione superius, ovatum, canaliculatum, subunguiculatum, pallidè fuscescens. Columna brevis, apice bidentata, basi horizontalitèr producta. Anthera ovata, mobilis, cuspidata. Massæ pollinis 2, planæ, suborbiculatæ.

Plate LXIX. Fig. 1. Flower. 2. The same dissected.

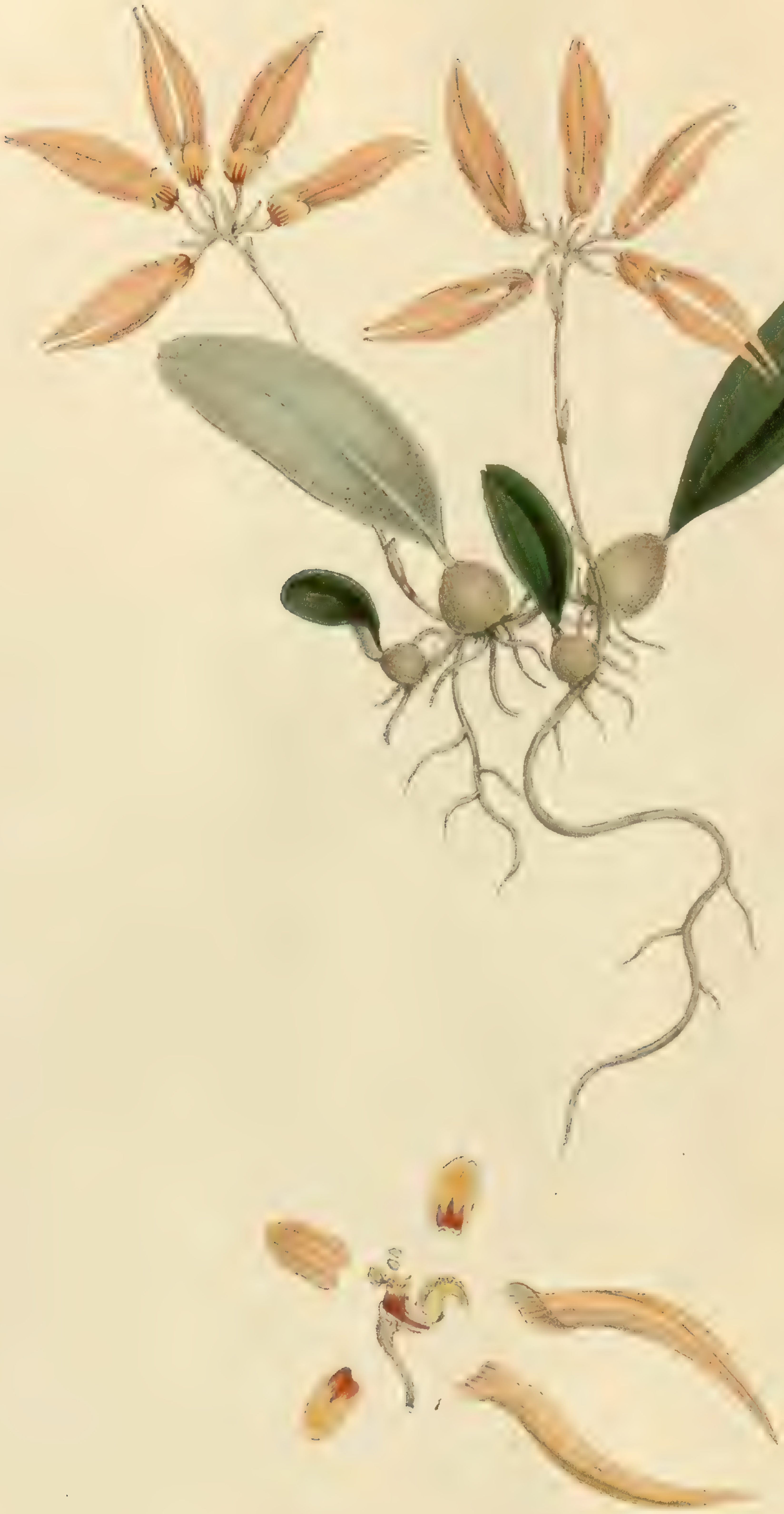


Justicia venusta

urchand del'

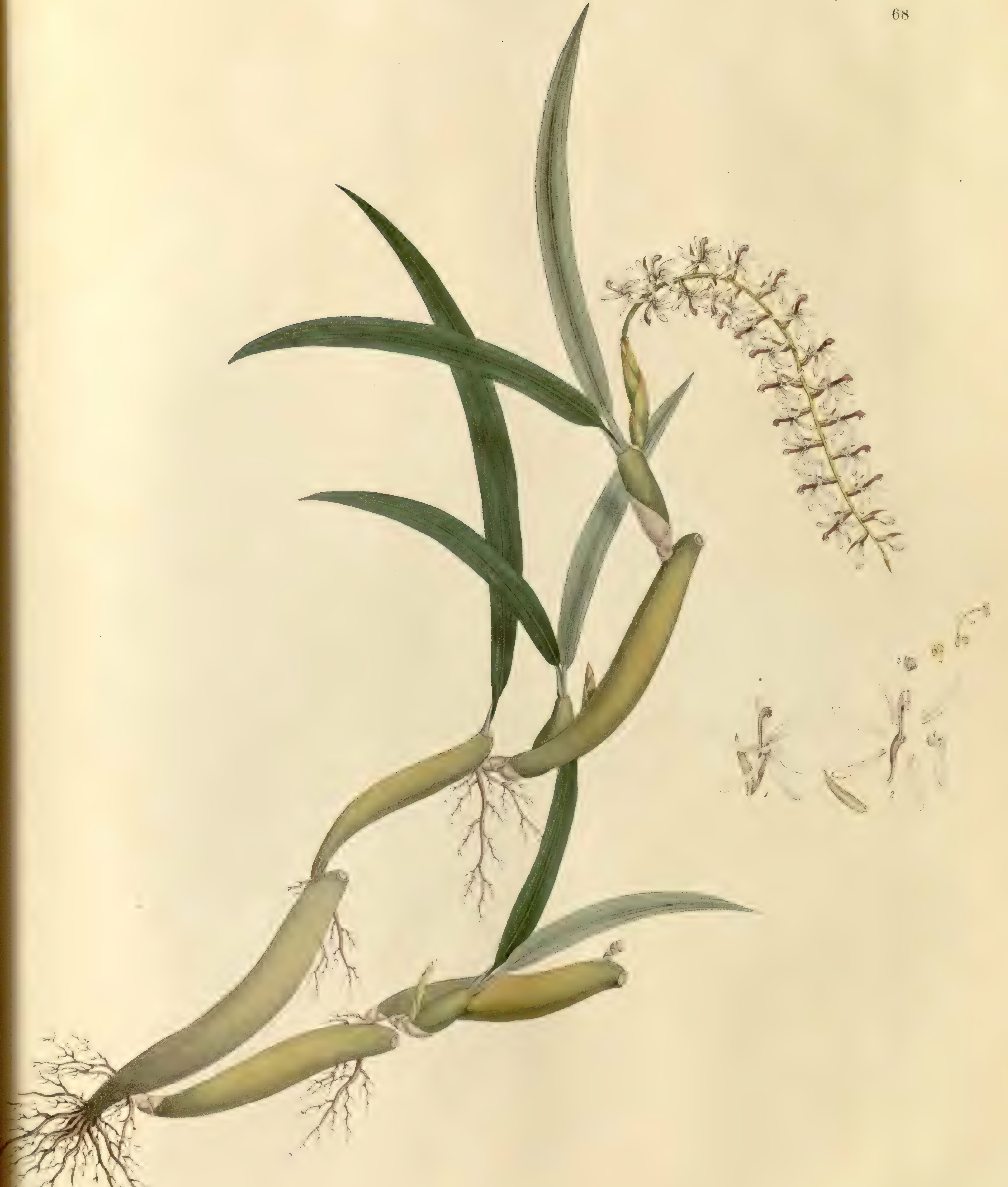
Printed by Engelmann Graf Coindet & Co.

M. Gauci lith



Gorachand del.^t Printed by Engelmann, Graf, Coindet & Co M Gauci lith

Cirrhopetalum Wallichii



hand del.

Printed by Engelmann, Graf, Coindet & Co

M Gauci lith

Otochilus fusca.

Bolbophyllum cylindraceum

Gorachand del.

[illegible]

M. Gauci lith.

TRIAS OBLONGA. Tab. 70.

Foliis oblongis. *Lindl. Orchid. p.* 60.
Trias oblonga, *Lindl. loc. cit.*
Habitat in montibus Napaliæ supra arborum truncis, saxisque muscosis. Floret Octobri.

Plantula lævis, humilis, cespites densas, sat magnas formans. Caulis tenerrimus, filiformis, ramosus, repens, *radiculas* creberrimas, fibrillosas, breves emittens. Pseudobulbi parvi, copiosi approximatique, globosi, 1-phylli, piso parùm majores, nitidi. Folium erectum, rigidum, oblongum, utrinque acutiusculum, sessile, coriaceum, crassum, 1½-pollicare, suprà atro-viride, lucidum, canaliculato-subplicatum, subtùs pallidum, costâ parùm elevatâ. Flos solitarius e basi pseudobulbi, longè pedunculatus, suberectus, fusco-viridis, ratione plantulæ magnus, inodorus. Pedunculus gracilis, teres, pollicaris, folio brevior, apice in *ovarium* breve, obsoletè 3-angulare dilatatus; basi suffultus *bracteis* paucis, lanceolatis, alternis, parvis, membranaceis. Sepala maxima, stellatim patentissima, æqualia, 3-angulari-ovata, acuta, plana, lineata, unguicularia; *lateralia* infra basin columnæ inserta. Petala minuta, lineari-lanceolata, vix ultra lineam longa, erecta, striata, columnæ parallela. Labellum sessile, ovatum, acutum, plicatum, fuscum, valdè parvum, adscendenti-incurvum, nudum, valdè mobile, basi contractâ cum extremitate inferiore columnæ parùm elongata, horizontali articulatum. Columna brevissima, anticè plana, apice cavitate profundâ exsculpta. Anthera mobilis, decidua, oblonga, 2-locularis, loculo prætereà vacuo, antico, antrorsùm elongata, plana, curva, retusa. Massæ pollinis 4, paribus duobus agglutinatæ.

I have found another species on trunks of trees, on the banks of the rivers in Martaban, which seems to differ only in having shorter, ovate or subrotund leaves. My friend Professor Lindley, in his excellent work on the *Orchideæ*, *p.* 60, calls it *Trias ovata.*

Plate LXX. Fig. 1. 2. Flower, natural size. 3. The same enlarged. 4. The same analysed. 5. Column with detached anthers and masses of pollen, the latter cohering in two pairs.

ÆSCYNANTHUS RAMOSISSIMA. Tab. 71.

Caule ramosissimo, foliis oblongis, acuminatis; corollâ subclavatâ, glanduloso-pubescente.
Habitat in sylvis Napaliæ superioris et inferioris, super arboribus rupibusque radicans, florens et fructigera a mense Julio usque ad Octobrem.

Planta fruticosa, valdè ramosa, flaccida, ad plurium orgyarum distantiam extensa. Caulis cylindricus, calamum scriptorium crassus, præcipuè ad insertionem foliorum articulato-intumescens, exserensque *radiculas* fasciculatas, ramulosas, epidermide indutus lævi, lucidâ, pallidè ferrugineâ. Rami graciles, flaccidi, dichotomè divisi, virides. Folia opposita, patentia, interstitiis longiora, oblongo-lanceolata, aliquandò subovata, attenuato-acuminata, integerrima, basi acuta, 4—6-pollicaria, carnosa, crassa, plana, suprà lucida, saturatè viridia, subtùs pallida, punctulata, costâ latâ, convexiusculâ, nervisque obsoletis, paucis, obliquis. Petioli unguiculares, convexiusculi, suprà plani, basi obscurè articulati. Umbella terminalis et e dichotomiis ramorum solitaria, subsessilis vel elongatione brevi ramuli suffulta, patens, foliis supremis brevior, constans floribus circiter 12, magnis, subadscendenti-nutantibus, ex aurantiaco-coccineis, speciosis, inodoris, subcarnosis, pedunculatis. Pedunculi teretes, graciles, glabri, pollicares vel infrà, basi suffulti *bracteolis* linearibus, membranaceis, acutis, brevibus, involucrum polyphyllum formantibus. Calyx oblongo-tubulosus, corolla dimidiò brevior, ejusdem basi amplior, pallidus, glaber, obsoletè quinquenervius, 5-dentatus; *dentes* lanceolati, acuti, patentiusculi, æquales. Corolla tubulosa, levitèr curva, parùm complanata, pollicaris, e basi angusta sensìm versùs faucem dilatata, ibique ad dorsum convexa, pilis frequentibus, capitellato-glandulosis obsita, viscosula, intùs flava, glabra, rarò puberula; *faux* pervia, levitèr compressa, 4-fida, laciniis ovatis, acutis, utrinque striâ atropurpureâ notatis; superiore parùm majore bifidâ, inferiore subrecurvatâ, lateralibus rectis. Stamina 5, quorum 4 fertilia longè exserta, parallela, didynama, e medio tubi orta, indeque usque ad basin ejus lineâ elevatâ decurrentia. Filamenta filiformia, pubescentia, corollâ ferè dimidiò longiora, e basi parùm crassiore attenuata, apice incurvâ purpurascentia. Antheræ parvæ, carnosæ, glabræ, oblongæ, obtusæ, nudæ, biloculares, basi adfixæ, horizontalitèr nutantes, apice cum ista filamenti oppositi firmitèr cohærentes. Stamen *quintum sterile* clavato-capitatum, lineas duas longum, inclusum, tubo inter filamenta superiora inserta. Pistillum corollâ brevius, pubescens. Ovarium cylindricum, unguiculare, basi angustatâ, subpedicellatâ circumdatum annulo carnoso brevi, lævi, crenulato, pseudo-quadriloculare, polysporum; *placentæ* nempè duæ oppositæ, stipitatæ, jugiformes, intùs ad axin contiguæ et utrinque ad parietes cavitatis extensæ, marginibus subrevolutis ovuliferis. Stylus teres, brevis. Stigma carnosum, clavatum, vertice plano-convexum, marginibus tumidis. Capsula gracillima, siliquæformis, cylindraceo-compressa, obsoletissimè 4-angularis et 4-sulcata, pendula, lævis, utrinque attenuata, fusca, 10-pollicaris, crassitie pennæ columbinæ, 1-locularis, 2-valvis: valvulæ planæ, lineares, intùs argenteæ, nitidæ. Placentæ 2 oppositæ, valvis contrariæ, marginulâ obsoletâ iisdem insertæ, tenuissimè membranaceæ, minutim foveolatæ, ante dehiscentiam lateralitèr revolutæ, semina loculis 4 spuriis continentes, posteà explanatæ, planæ, directione valvulis parallelæ, iisdemque latiores. Semina perquam copiosa, minuta, cylindrica, fusca, foveolis placentarum laxè adhærentia, obtusa, inversa, utrinque terminata pilo longissimo, cano, basis solitario, apicis geminato. **Integumentum** *exterius* coriaceum, rugoso-scabrum; *interius* subtilissimum. **Perispermum** nullum. **Embryo** cylindricus, subhyalinus; *cotyledones* oblongæ; *radicula* teres, crassiuscula, supera.

This beautiful plant is found rather common on trunks of trees and rocks in Nipal, covering their surface to a considerable extent. It approaches closely to Roxburgh's *Incarvillea* (*Æscynanthus*) *parasitica*, but differs in having smaller flowers, and in the size and figure of the leaves.

Plate LXXI. Fig. 1. Flower. 2. Calyx opened. 3. Corolla opened. 4. Two cohering anthers viewed from the back. 5. A detached anther seen from the anterior side. 6. Stigma. 7. 8. Ovarium.

CHIRITA MACROPHYLLA. Tab. 72.

Radice repente; foliis longissimè petiolatis, ovato-cordatis; scapo elongato, paucifloro; corollâ cylindricâ, medio ventricosâ.

Habitat in sylvis umbrosis montis Sheopore Napaliæ, florens sub pluviis.

Planta carnosa, erecta, pedalis, 2-pedalis. **Radix** crassa, repens, densissimè fibrillosa. **Folia** radicalia, pauca, longè petiolata, obliquè patentia, ovato-cordata, aliquandò ovata, basi acuta, latiusculè serrata, acuta, sinu basis levi, lobis rotundatis, sæpè inæqualibus, subcarnosa, 6—10-pollicaria, utrinque conspersa pilis brevibus, canis, subtùs nervoso-venosa. **Petioli** erecti, crassi, carnosi, densè pubescentes, hinc sulcati, basi purpurascentes, folio duplò longiores. **Scapus** erectus, gracilis, cylindricus, petiolos longitudine æquans, pubescens, simplex vel semel divisus, nunc folio uno alterove parvo stipitatus, apice gerens *flores* aliquot magnos, flavos, speciosos, nutantes, subumbellatos, pedunculatos. **Pedunculi** teretes, longitudine inæquales, pollicares—2-pollicares, suffulti bracteâ involucriformi, ovatâ, ciliatâ, unguiculari. **Calyx** magnus, ovatus, subventricosus, membranaceus, 5-angularis, 5-fidus, pallidus, glaber; *laciniæ* lanceolatæ, acuminatæ. **Corolla** infundibuliformis, 1½-pollicaris, calyce triplò longior, medio dilatata, fauce bilabiatâ, 5-lobâ; lobis ovatis, obtusis. **Stamina** inclusa; 2 fertilia, 3 sterilia. **Filamenta** fertilium carnosa, pubescentia, medio crassiora. **Antheræ** oblongæ, nutantes, cohærentes. **Sterilia** subcapitata, intermedium brevissimum. **Pistillum** ut in *C. grandiflora* (suprà p. 43).

Plate LXXII. Fig. 1. Flower. 2. Calyx opened. 3. Corolla opened. 4. Stamen. 5. Ovarium opened.

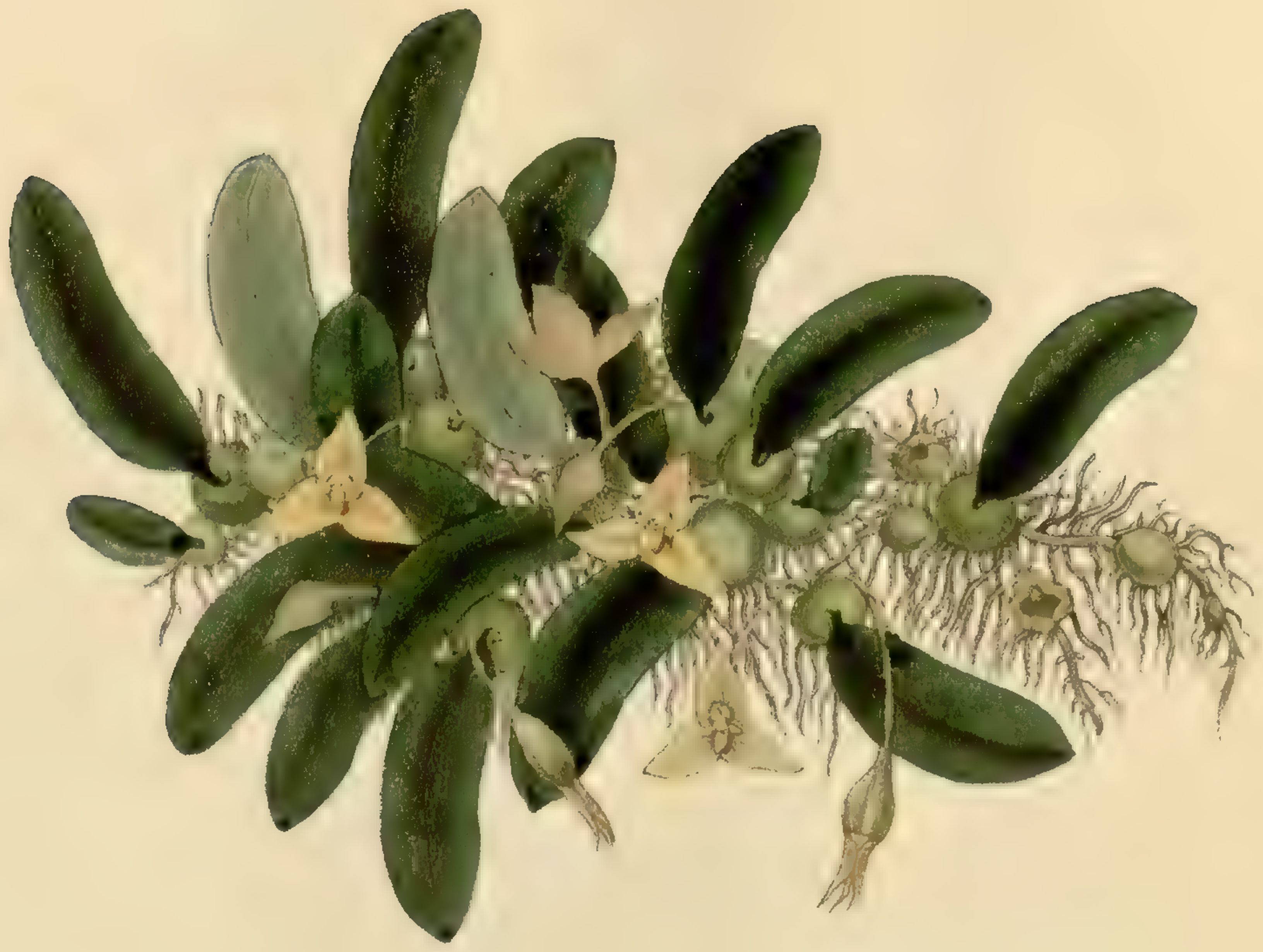
CEROPEGIA LONGIFOLIA. Tab. 73.

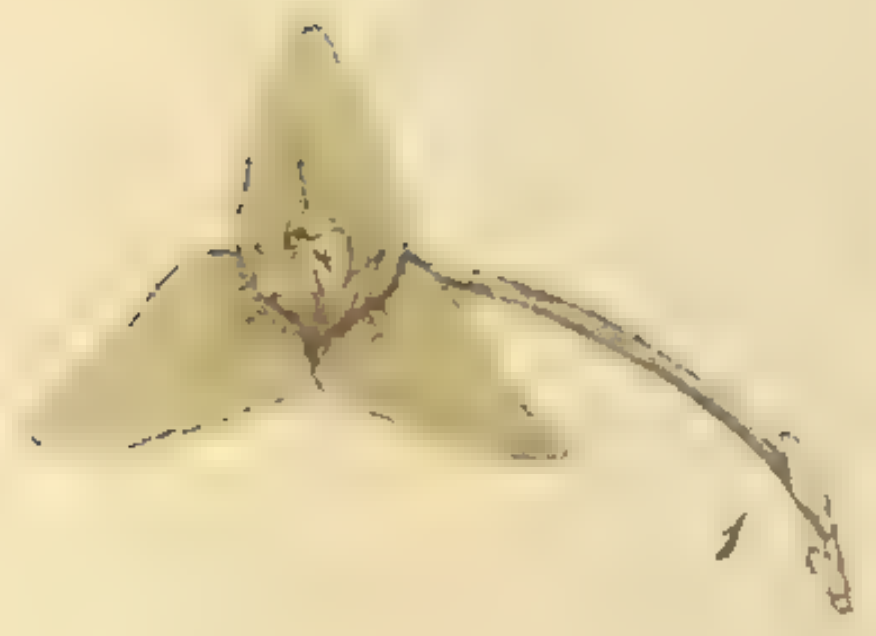
Radice fibrosâ; caule ramisque gracilibus, volubilibus, pubescentibus; foliis oblongis, attenuato-acuminatissimis, undulatis, basi retusis; floribus umbellatis; laciniis corollæ lanceolato-falcatis, obtusis.

Habitat in valli Napaliæ ad sepes, florens folliculosque proferens mensibus Junio—Augusto.

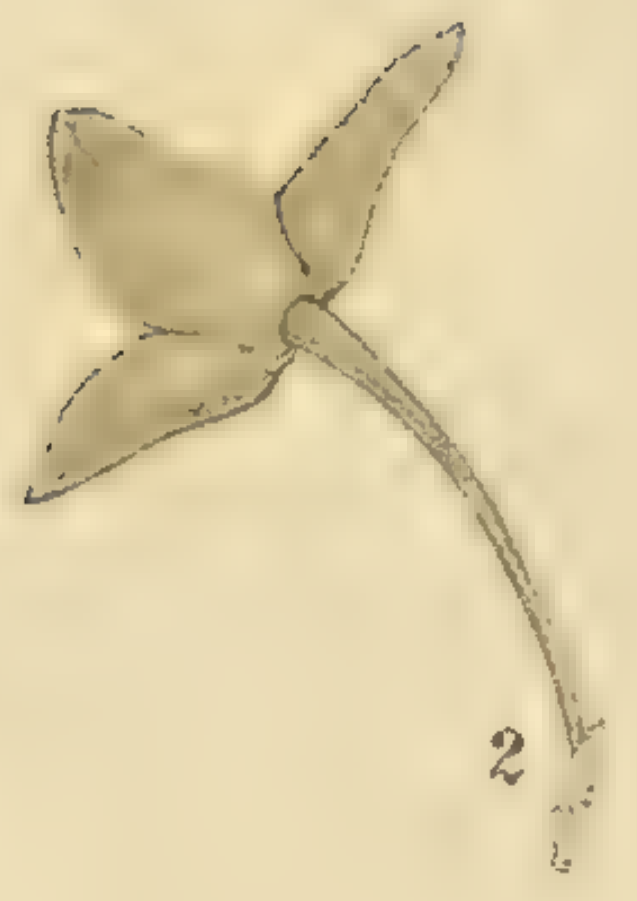
Radix constat fibris carnosis, cylindricis, fasciculatis, cinereis, absque tuberibus. **Caulis** gracilis, longus, ramosus, valdè volubilis, crassitie pennæ columbinæ, uti *rami* gracillimi obsiti pubescentiâ copiosâ, mollissimâ, canescente. **Folia** patentissima, opposita, remotiuscula, brevè petiolata, subcarnosa, oblonga, e basi retusa attenuata, acuminata, 3—7-pollicaria, subundulata, pubescentia, ciliata, suprà atro-viridia, levitèr rugosa, ad sinum glandulis 2 parvulis, convexis et infra iis acervulo ciliarum; subtùs costâ elevatâ, nervis remotis, obliquis, punctisque asperula minutis, paucis. **Petioli** curvi, ½-unguiculares, basi hinc sæpissimè glandulâ laterali muniti, ramum serie ciliarum amplectentes. **Flores** magni, fusco-viridescentes, limbo luteo, 1½-pollicares, 6—12-congesti in *umbellam* pedunculatam, extra-axillarem, solitariam, folio triplò breviorem. **Pedunculus** pollicaris vel 2-pollicaris, teres, *pedicellique* graciles, ½-unciales, pubescentes. **Involucrum** constans *bracteis* lanceolatis, acuminatis, infra pedicellis, iisdem pluriès brevioribus. **Calyx** lævis, subcarnosus, profundè 5-partitus; *laciniæ* lanceolatæ, acuminatæ, patentes, basin corollæ dilatatam parùm excedentes. **Corollæ** *tubus* curvus, ½-uncialis, basi parùm dilatatus intùsque villosus, apice ampliatus in *limbum* magnum, ovatum, 5-fidum; *laciniæ* lanceolatæ, lateribus replicatæ, ideòque falcatæ, apice obtusâ pilis paucis, atris barbatâ, conniventes levitèrque cohærentes, sinubus latis, fundo acutis. **Genitalia** basi tubi recondita. **Corona staminea** constans lobis 5 longis, simplicibus, capillaceis, supra antheris conniventibus. **Filamenta** oblongo-cylindrica, carnosa, coronâ breviora, ejusque lobis opposita, apice clavatâ, obtusâ, utrinque loculifera. **Massæ pollinis** complanato-ovatæ, fuscæ, erectæ, suffultæ processu cuneato, basi acutâ supra basin corpusculi proprii, atri, minuti inserto. **Ovaria** subulata, lævia; *stigma* planum, obsoletè 5-gonum. **Folliculi** 2 gracillimi, cylindraceo-subulati, divaricati, acuminati, 5-pollicares. **Semina** ovata, plana, membranaceo-marginata, fusca, comâ sericeâ, copiosâ triplò breviora.

Plate LXXIII. Fig. 1. Flower. 2. Calyx and corolla opened.

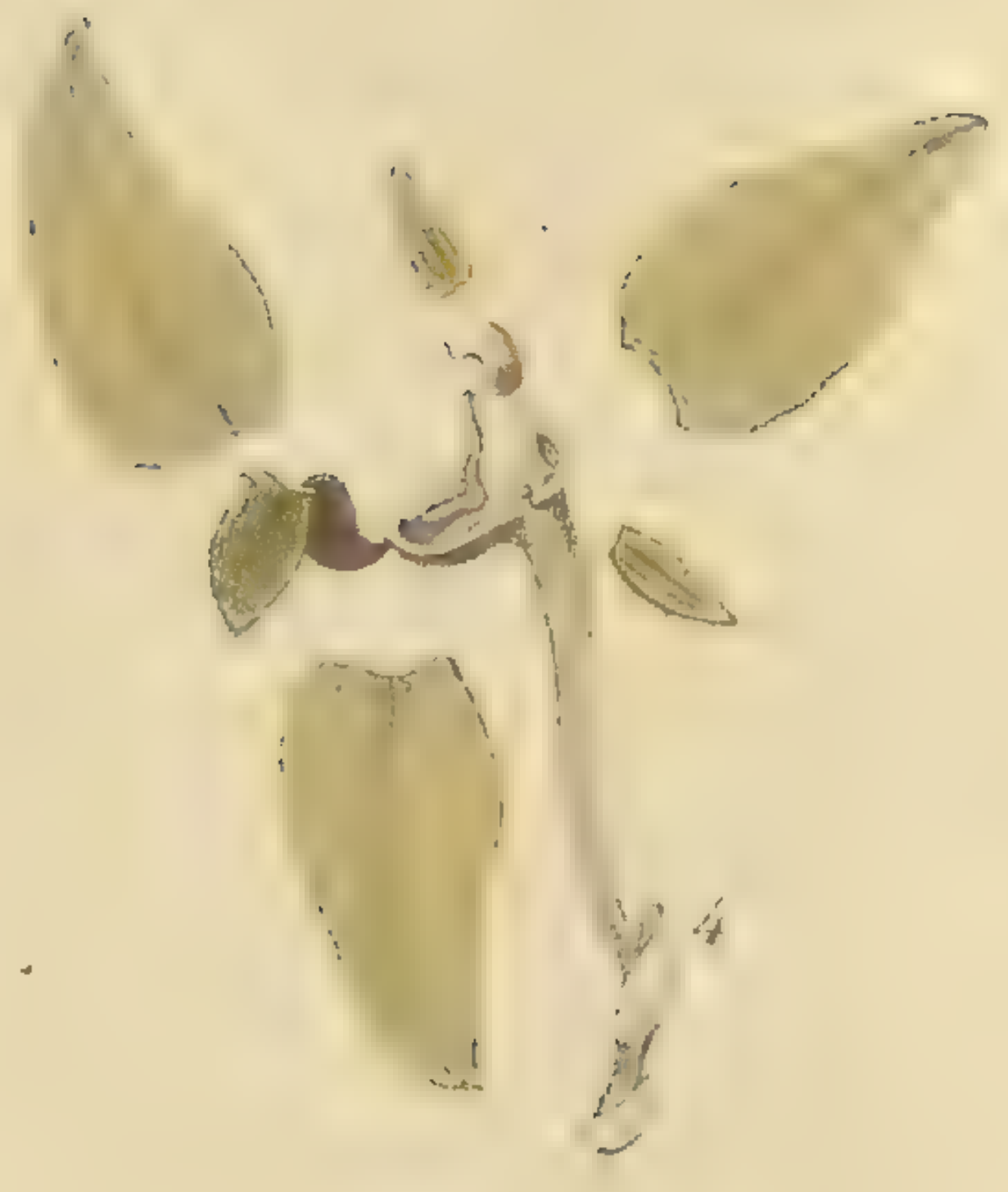




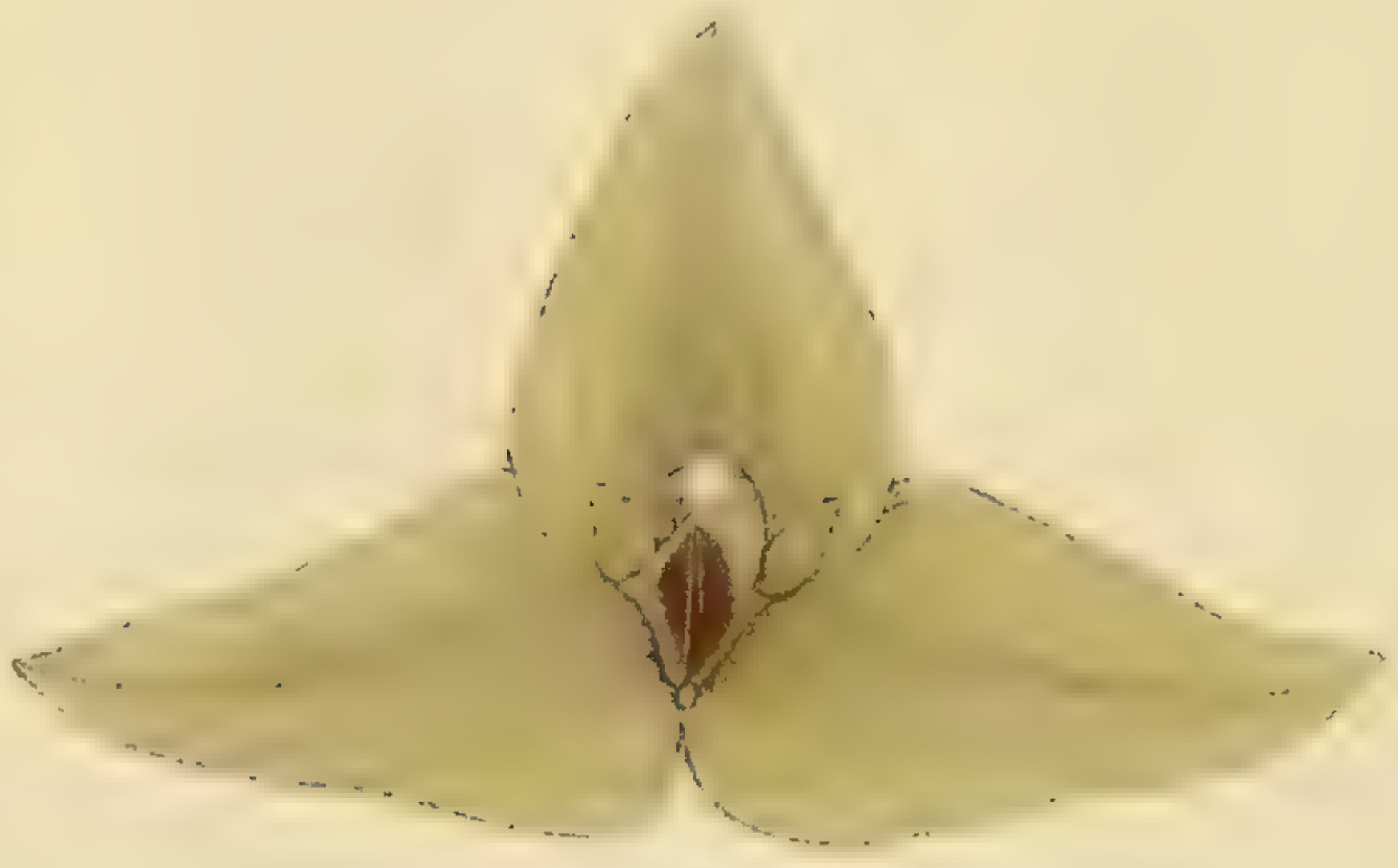
1



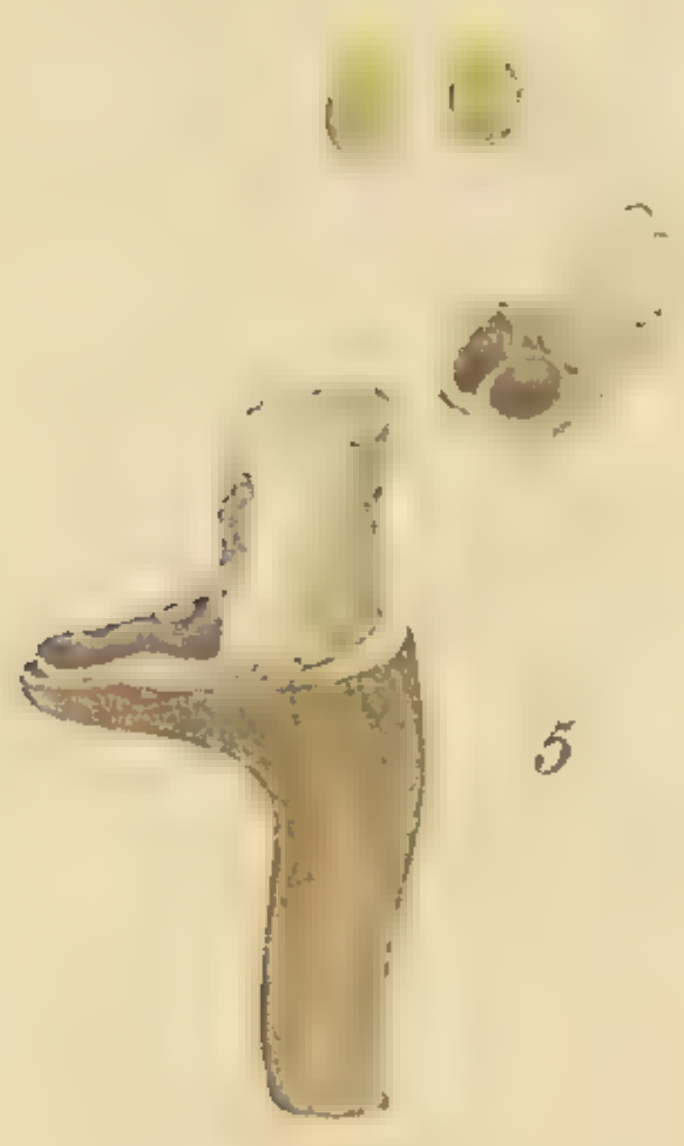
2



4



3



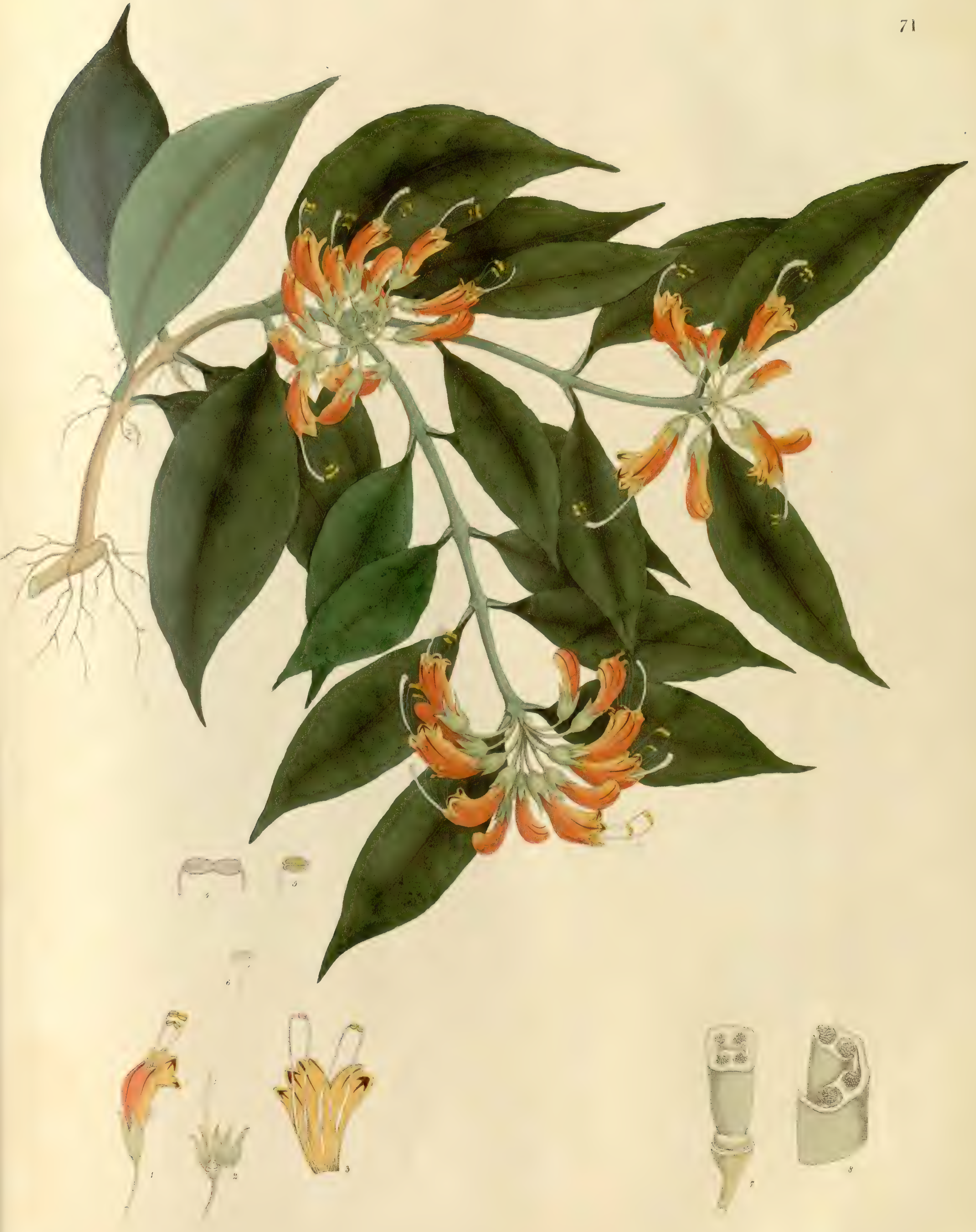
5

Gorachand del^{t}

Printed by Engelmann Graf Coindet & Co

M Gauci lith

Trias oblonga



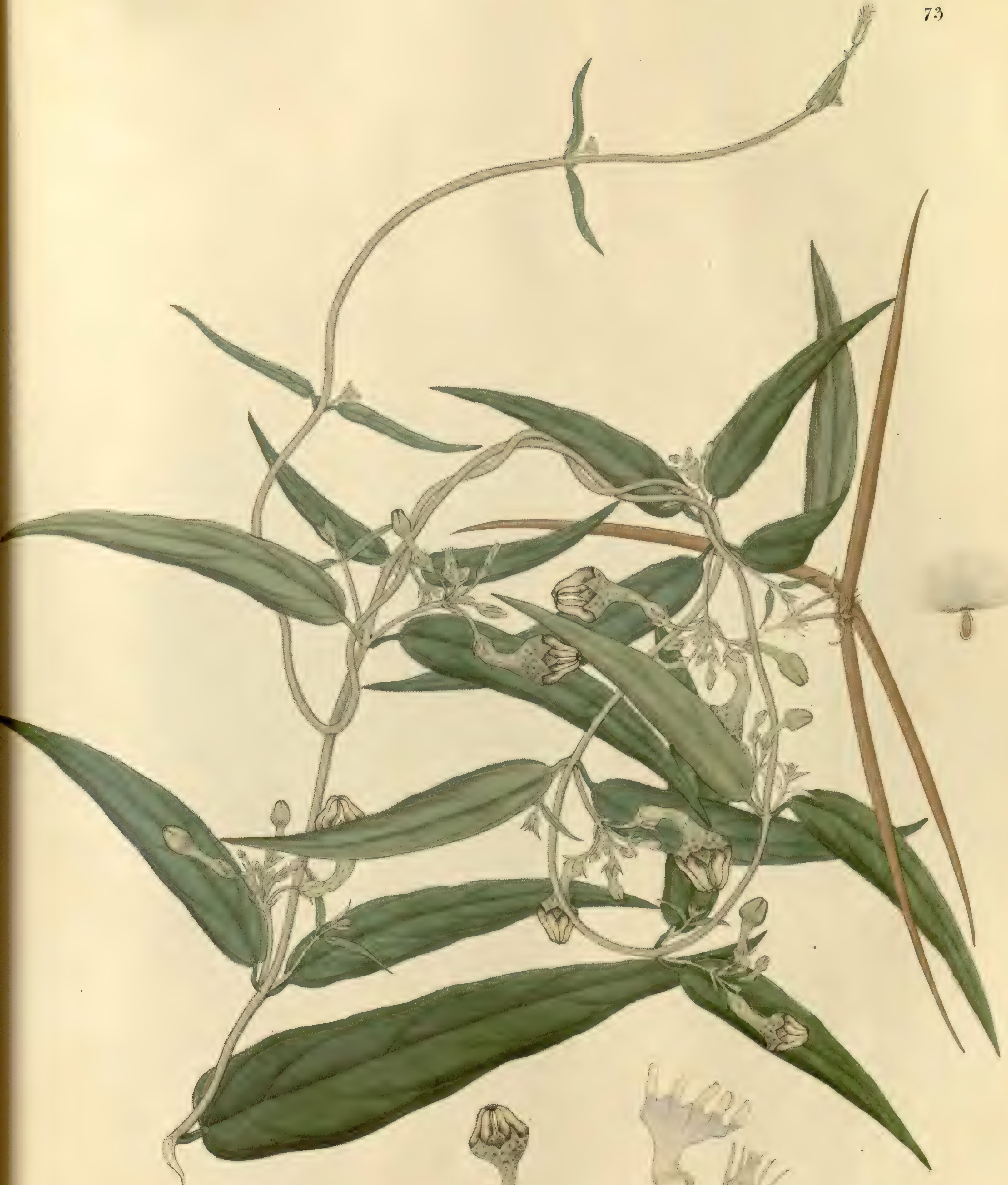
Gorachand del^t

Printed by Engelmann [illegible]

Aescynanthus ramosiſsima

Chirita macrophylla

[illegible] ad nat. del. [illegible]



shuipersaud del.^t

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lith

Ceropegia longifolia

ROYLEA.

Calyx ovato-tubulosus, æqualis, 10-nervius, semi-5-fidus; laciniis dilatato-oblongis, venosis, erectis; intùs fauce subvillosâ. Corolla calyce brevior, bilabiata, labiis subæqualibus: superiore erecto, integro, fornicato, inferiore patente, 3-fido, lobo medio integro. Stamina 4, sub labio superiore adscendentia. Antheræ 2-loculares, loculis divaricatis. Stylus apice subæqualitèr 2-fidus. Achenia sicca, lævia.—*Bentham MSS.*

Classis Linnæana: *Didynamia Gymnospermia.*

Ordo naturalis: *Labiatæ;* Tribus *Nepeteæ.*

Corolla ferè omninò ut in generibus *Ballota* et *Beringeria,* quibus arctè affinis est hæc planta. Differt præcipuè formâ calycis; habitus etiam valdè abludit.—*Benth.*

Nomen amici carissimi et æstumatissimi Johannis Forbesii Roylii, horti botanici Saharunpurensis præfecti, adolescentis flagrantissimi felicissimique studii, eruditis in actis Societatis Medicæ Calcuttensis scriptis præclari, huic generi imposui.

ROYLEA ELEGANS. Tab. 74.

Ballota cinerea, *Don. Prodr. Flor. Nepal. p.* 111? (*Benth.*)

Habitat in montibus Sirmorensibus, et in convalli Deyra dicta, florens fine Maji et sub pluviis.

Nomen Hindustanicum, *Putkurru.*

Frutex ramosissima, erecta, 3—5-pedalis. Rami patentes, paniculati, obsoletè 4-angulares, tomento cinereo, brevi, densissimo vestiti, ætate parùm glabriores; luxuriantes subscandentes, longissimi. Folia copiosissima, opposita, patentia, interstitia sæpiùs longitudine subæquantia, ovata, acuta, levitèr subcordata, grossè et obtusè, in planta juniore, subinciso-serrata, 1½-pollicaria, utrinque parcè et adpressè pilosula, suprà lætissimè viridia, parùm rugosa, subtùs incana, sub lente minutissimè glanduloso-punctata, nervoso-venosa. Petioli unguiculares, pilosuli, suprà sulcati. Pedunculi axillares, oppositi, petiolos æquantes, pilosi, 3-flori. Flores ex albo dilutissimè rosei, brevissimè pedicellati. Bracteæ ad basin pedicelli setaceæ, villosæ, lineas 3 longæ, persistentes. Calyx tubulosus, persistens, incano-villosulus, minutìm glanduloso-punctulatus; *tubus* cylindricus, 10-nervius, nervis hispidulis, ferè unguicularis, intùs pilosus, fauce demùm contractâ; *limbus* magnus, scariosus, subæqualitèr 5-fidus, erecto-patentiusculus, tubum longitudine æquans; *laciniæ* cuneato-oblongæ, obtusæ, deorsùm parùm angustatæ, 3-nerviæ, reticulatæ. Corolla calycem vix longitudine æquans; *tubus* cylindricus, gracilis, lævis; *limbus* 2-labiatus, *labio superiore* oblongo, obtuso, subtruncato, fornicato, *inferiore* patulo, 3-lobo, lobis ovatis, obtusis, intermedio majusculo. Stamina recta, parallela, didynama, labio superiore subocculta, eodemque vix longiora; *filamenta* glabra; *antheræ* divaricato-bilobæ, loculis demùm confluentibus. Discus hypogynus obsoletissimus. Stylus filiformis, staminibus parùm brevior. Stigma bilobum, lobis subulatis, divergentibus, subæqualibus. Achenia oblonga, subcomplanata, fusca, lucida, lævia, calycis tubo triplò breviora, 2 vel 3 e quatuor sæpiùs abortiva. Testa subcrustacea. Perispermum carneum, tenue. Embryo erectus, grandis, *cotyledonibus* ovatis, *radiculâ* cylindricâ.

This handsome shrub is furnished with many branches and an abundance of pale-green, glaucous foliage. It produces opposite, axillary peduncles, each of which bears three elegant flowers, remarkable on account of the large and scariose calyx in which the white corolla is almost hidden. It was found on the Sirmore mountains by John Forbes Royle, Esq. of the Honourable East India Company's Bengal Medical Service, and thence introduced into the botanic garden at Saharunpur; it was also sent by him to the Calcutta garden, where it thrives well, and blossoms in the cold season. The only time I ever met with the plant in its wild state was in April 1825, on one of the mountains, which confine Deyra Dhoon (the valley of Deyra) to the northward.

I have sincere satisfaction in dedicating this new genus to my valued friend Mr. Royle, whose claims as an excellent botanist fully entitle him to that compliment. How eminently the garden at Saharunpur has benefited under his charge, is manifest by the numerous improvements and additions to its riches, which it owes to his indefatigable zeal and talents, and which are well known to the Government of Bengal, as well as to all who have visited the western provinces of Hindustan. But independent of having the care of this most useful establishment, he is likewise the founder of a nursery for medicinal and alpine plants generally, on the Chaor mountain of Sirmore, which has already proved of the greatest service. It is not, however, botany alone to which he has devoted his talents; there is not a branch of natural history in which he has not acquired a high degree of proficiency. To pursuits of this nature he is devoting every moment of leisure, which his extensive professional duties afford him, with a degree of ardour and success, which is far beyond my feeble praise, and which must soon place his name high among naturalists. It will be observed, that in expressing my sentiments above, in the dedication of the genus, I have adopted the words of the celebrated Professor Kunth, on the occasion of his naming the genus *Lindleya* after a very dear and mutual friend of us both, to whom I am indebted for the elegant dissections of the accompanying plate.

I cannot allow this opportunity to pass without expressing publicly to Professor Kunth and M. Alphonse Decandolle my grateful acknowledgments for their invaluable personal aid in the arrangements connected with the Herbaria under my charge, by which I am at present benefiting.

Plate LXXIV. Fig. 1. Flower. 2. Calyx. 3. Corolla. 4. Anther. 5. Stigma.

SYNOPSIS

Of the Genera and Species of Indian Labiatæ *enumerated in the Catalogue of the Collections in Dr. Wallich's charge.*

By George Bentham, Esq. (Continued *from page* 31.)

Tribus 3. AJUGOIDEÆ, *Benth. in Bot. Reg. vol.* 15. *ad calc. n.* 1289.*

XII. Leucosceptrum, *Smith Exot. Bot. p.* 113.

Calyx ovato-campanulatus, subæqualis, 5-dentatus. Corolla, tubo calyce breviore, bilabiata; labiis abbreviatis, superiore erecto, emarginato, inferiore patente, trifido. Stamina 4, adscendentia, ex emarginatura labii superioris longè exserta. Antheræ loculis divaricatis confluentibus, subuniloculares. Stylus apice bifidus, lobo superiore breviore. Achenia reticulato-rugosa.

1. *L. canum*, Smith loc. cit. t. 116. *Teucrium macrostachyum*, Wall. MSS. *Clerodendron Leucosceptrum*, Don. Prod. Fl. Nepal. p. 103.

Frutex ramis subteretibus vel alternatìm levitèr complanatis, tomento candido densè vestitis. Folia ad summitates ramorum approximata, petiolata, 6—8-pollicaria, oblonga, utrinque attenuata, suprà glabriuscula, subtùs densè tomentosa. Verticillastri densè spicati. Spicæ 3—6-pollicares, tomentosæ, genitalibus longè exsertis comosæ. Folia floralia bracteæformia, ovato-rotundata, sessilia, calycibus breviora. Calyces densè tomentosi. Corolla calycem vix superans, extùs tomentosa.

Hab. in Napalia et Sillet.

XIII. Teucrium, *Linn. Gen.* 764.

Calyx tubulosus, ovatus vel campanulatus, 5-fidus vel 5-dentatus, subæqualis vel bilabiatus. Corollæ tubus calyce sæpiùs brevior, labium superius bipartitum, laciniis demissis, inferius patens, trifidum. Stamina 4, adscendentia, e fissura labii superioris longè exserta. Antheræ, loculis divaricatis, confluentibus, subuniloculares. Stylus apice subæqualitèr bifidus. Achenia plùs minùsve reticulato-rugosa.

1. *T. quadrifarium* (Hamilt. in Don. Prodr. Fl. Nepal. p. 108), villosum vel rariùs glabriusculum; caule herbaceo, obtusè quadrangulato, parcè ramoso; foliis brevitèr petiolatis, ovatis, basi cordatis, argutè serratis, rugosis; floribus oppositis, secundis, laxè spicatis; spicis paniculatis; foliis floralibus bracteæformibus, calyces superantibus, junioribus quadrifariàm imbricatis, demùm deciduis; calycis pubescentis dentibus subæqualibus, 3 superioribus obtusis, 2 inferioribus acutis; corolla tubo incluso, labio calyce duplò longiore.—*T. stoloniferum*, Roxb. Hort. Beng. p. 44.? non Hamilt.

α *hirsutissimum*. *T. hispidum*, Benth. in Wall. Cat. Herb. Ind. n. 2029.

β *tomentoso-pubescens*. *T. quadrifarium*, Hamilt. in Don. Prodr. Fl. Nepal. p. 108. Benth. in Wall. Cat. Herb. Ind. n. 2024. *T. vestitum*, Wall. MSS.

γ *glabriusculum*. *T. elevatum*, Benth. in Wall. Cat. Herb. Ind. n. 2026. *Ajuga elevata*, Wall. MSS.

Caules circitèr bipedales, erecti, basi stoloniferi (?). Folia ferè *T. Scorodoniæ*, sed acutiora. Spicæ juniores densè imbricatæ, demùm laxæ, 2—3-pollicares; inferiores axillares, simplices; superiores subramosæ, paniculam angustam formantes. Flores secundi, majores quàm in *T. Scorodonia*. Calyx *T. tomentosi*, sed vix bilabiatus.

The three plants enumerated above appear at first sight very distinct; but on a closer examination of a great number of specimens, I am induced to consider them as mere varieties. The floral leaves often fall off before the flowering is far advanced, so as to change much the aspect of the plant. Dr. Roxburgh's MS. description of *T. stoloniferum* appears to refer to this species, which is however quite distinct from the plant to which that name is given in Dr. Hamilton's herbarium.

Hab. α in Sillet. β Napalia, Kamaon et Sirmore. γ Taong Dong, mons prope Avam.

2. *T. Royleanum* (Wall. Cat. Herb. Ind. n. 2027), tomentoso-villosum, foliis petiolatis, ovatis, basi subcordatis, serratis, subtùs tomentosis; floribus subsecundis, spicatis; spicis abbreviatis, axillaribus; calycibus bilabiatis, dentibus 3 superioribus ovatis, 2 inferioribus acutis; corollæ tubo exserto, labio calyce duplò triplòve longiore.

Affine *T. quadrifario*, sed staturâ humilius videtur, et characteribus datis satìs distinctum.

Hab. in monte Choor. (*J. F. Royle.*)

3. *T. tomentosum* (Heyne MSS. ex Wall. Cat. Herb. Ind. n. 2025), herbaceum (?); caule tetragono, densè tomentoso, ramoso; foliis petiolatis, ovatis, basi attenuatis, duplicato-serratis, subtùs densè tomentosis; paniculâ amplâ, ramosissimâ; floribus secundis; foliis floralibus bracteæformibus, ovatis, calyce brevioribus; calyce bilabiato, dentibus 3 superioribus ovatis, 2 inferioribus acutis; corollæ tubo incluso, labio calyce vix duplò longiore.—*T. paniculatum*, Herb. Madr.

Caulis, ut ex speciminibus videtur, herbaceus, erectus; panicula amplior, ramosior, spiculis singulis brevioribus, floribus numerosioribus quàm in *T. stolonifero* et *quadrifario*. Folia latiora, minùs rugosa, basi attenuata vel truncata, nec cordata ut in *T. quadrifario*.

Hab. . . . .

4. *T. stoloniferum* (Hamilt. MSS.), herbaceum; caule tetragono, glabro vel brevissimè tomentoso, ramoso; foliis petiolatis, elliptico-oblongis, basi attenuatis, irregularitèr crenatis; floribus secundis, laxè spicatis; spicis pubescentibus, paniculatis; foliis floralibus bracteæformibus, calyce subbrevioribus; calycis dentibus 3 superioribus ovatis, obtusis, 2 inferioribus lanceolatis, acutis; corollæ tubo incluso, labio calyce duplò longiore.—*T. Massiliense*, Lour. Fl. Coch. 439?

Flores præcedentibus minores, panicula minor et laxior; folia angustiora, basi attenuata.

Hab. in Sillet. China (*Herb. Hook. et Lindl.*)

XIV. Ajuga, *Linn. Gen.*

Calyx ovatus, subæqualis, 5-fidus. Corolla tubo subexserto, bilabiata, labio superiore abbreviato, erecto, integro vel emarginato, inferiore majore, patente, trifido. Stamina 4, adscendentia, e labio superiore exserta. Antheræ biloculares, loculis divergentibus vel divaricatis, subconfluentibus. Stylus apice subæqualitèr bifidus. Achenia reticulato-rugosa.

1. *A. lobata* (Don. Prodr. Fl. Nepal. p. 108), glabriuscula, procumbens, stolonibus reptantibus; foliis longè petiolatis, ovatis, basi hastato-cordatis, sinuato-lobatis; verticillastris sub 6-floris, spicatis, secundis.

Basi pubescens vel villosa, cæterùm ferè glabra. Florum spica 3—4-pollicaris, laxiuscula; flores inferiores in axillis foliorum caulinorum superiorum subsolitarii, a spica remoti. Folia floralia inferiora caulinis conformia, superiora subsessilia, ovato-oblonga, grossè dentata. Calyx profundè 5-fidus, lobis lanceolatis, foliaceis. Corolla pilosiuscula, calycem triplò superans.

Hab. in Napalia et Gossain Than.

2. *A. macrosperma* (Wall. Cat. Herb. Ind. n. 2035), glabriuscula; caule basi procumbente, estolonoso, supernè paniculato; foliis petiolatis, oblongis, utrinque attenuatis, grossè dentatis; verticillastris 6—10-floris, spicatis, inferioribus subremotis; foliis floralibus flores vix superantibus, superioribus brevioribus; calycis pubescentis dentibus lato-ovatis, obtusis; corollæ tubo calycem duplò superante.

Caulis 1—2-pedalis, paniculato-ramosus. Folia inferiora longè petiolata, limbo 2—4-pollicari. Spicæ 3—6-pollicares. Folia floralia inferiora caulinis conformia at minora, superiora ovato-lanceolata, integerrima, bracteæformia. Calyx maturitate turbinatus, dentibus brevibus, obtusissimis. Corolla parva, tubo elongato, labio inferiore quàm superius vix duplò longiore. Achenia valdè reticulata.

Hab. in montibus Pundua et Taong Dong.

---

* In *Ajugoideæ*, as in *Menthoideæ*, the *Satureineæ*, and most other *Labiatæ*, the stigmata are minute, and placed on the inner side of the extremity of each division of the style.

3. *A. decumbens* (Thunb. Fl. Japon. p. 243?) glabriuscula, vel supernè villosa, prostrata vel ramis adscendentibus; foliis oblongis, ovatis, laciniato-serratis, basi attenuatis, inferioribus petiolatis; verticillastris multifloris, teretibus, interruptè spicatis; calycis pilosi dentibus lanceolatis, obtusiusculis; corollæ tubo calycem vix superante.

β? adpressè villosa, caulibus foliosis, spicis abbreviatis, foliosis. Caules elongati, prostrati, radicantes, parcè foliosi, glabri vel supernè hirsuto-villosi. Spicæ 3—4-pollicares. Flores majores quàm in *A. parviflora,* at duplò minores quàm in *A. reptante.* Folia caulina glabra, floralia villosa, ovata, subintegerrima, bracteæformia.

In var. β. folia numerosiora, minora, rigidiora, nervosa; floralia flores subsuperantia.

Hab. α in Napalia, valli Deyra dicta et in Bengala. β Kamaon.

4. *A. remota* (Benth. in Wall. Cat. Herb. Ind. n. 2033), villosa; caule basi procumbente, estolonoso; foliis sessilibus, oblongis, basi attenuatis, grossè serrato-dentatis; verticillastris sub 6-floris, remotis; foliis floralibus flores superantibus; calycis villosi dentibus lineari-lanceolatis, acutis; corollæ tubo calycem subduplò superantibus.

β? verticillastris superioribus approximatis, subspicatis.

Habitu quodammodò *A. orientalem* refert, at minor. Caules 6—9 pollicares, vix ramosi. Folia floralia caulinis conformia, inferiora sesqui-, superiora semi-pollicaria, ovato- vel elliptico-oblonga, basi attenuata, irregularitèr et profundè dentata. Flores magnitudine *A. reptantis* vel *pyramidalis,* labio superiore brevissimo.

Hab. α in Kamaon. β Oude, Hurdwar.

The var. β. appears to be intermediate between this species and the *A. decumbens.* In Dr. Hooker's herbarium there is a plant from the Cape, which is also closely allied to this one. If it be really a good species, I would give it the name of *A. capensis,* and distinguish it from the *A. remota* by the long, white, rigid hairs, with which it is clothed, by the leaves strongly nerved underneath, the floral ones shorter and broader than in *A. remota,* and by the flowers much more numerous in each verticillastrus, the calyces larger, and the tube of the corolla shorter. The stem appears also to be shorter and more erect.

5. *A. parviflora,* densè lanato-pilosa; caule basi procumbente, estolonoso; foliis radicalibus ovatis, subintegerrimis, caulinis oblongis, basi attenuatis, obtusè dentatis, floralibus minoribus, conformibus; verticillastris multifloris, remotè spicatis; calycis pilosi dentibus lanceolatis, acutis; corollis calycem vix superantibus.—*A. densiflora,* var. *villosior,* Wall. Cat. Herb. Ind. n. 2031.

Caules semipedales. Folia caulina et floralia radicalibus multò minora, villosissima. Corollæ triplò minores quàm in cæteris speciebus, labium inferius vix duplò longius quàm superius. Verticillastri inferiores remoti, superiores subspicati.

Hab. in Kamaon.

6. *A. bracteosa* (Wall. Cat. Herb. Ind. n. 2032,, densè lanato-pilosa; caule basi procumbente, estolonoso; foliis ovatis, basi attenuatis, sinuato-dentatis; verticillastris 6—10-floris, spicatis; foliis floralibus ovatis, flores superantibus; calycis pilosi dentibus lato-lanceolatis, acutis; corollæ tubo calycem duplò superante.—*A. integrifolia,* Don. Prodr. Fl. Nep. p. 108? *A. Hyoscyami,* Wall. MSS.

Affinis *A. parvifloræ, densifloræ* et *remotæ,* at caulis ramosior; folia multò latiora. Spicæ 3—4-pollicares. Folia floralia numerosa, lato-ovata. Flores magnitudine *A. reptantis.*

Hab. in Napalia.

7 *A. densiflora* (Wall. Cat. Herb. Ind. n. 2031), tomentoso-pubescens; caule basi procumbente, estolonoso; foliis oblongis, basi attenuatis, obtusè crenato-dentatis; verticillastris multifloris, approximatis, spicatis; foliis floralibus quàm flores brevioribus; calycis villosi dentibus lanceolatis; corollæ tubo calycem vix superante.

Habitus *A. parvifloræ* et *bracteosæ.* A prioredifferi floribus majoribus, spicis approximatis; ab altera specie foliis floralibus minoribus, integerrimis. Caules 6—9-pollicares, vix ramosi, supernè subnudi. Folia oblonga, vix crenata, subtùs densè tomentoso-villosa. Spicæ 2—4-pollicares, densæ. Folia floralia ovata, integerrima. Corolla magnitudine *A. pyramidalis.*

Hab. in Kamaon et Napalia.

XV. Anisomeles, *Br. Prodr. p.* 503.

Calyx ovatus, subæqualis, 5-dentatus. Corolla tubo calycem subæquante, bilabiata; labio superiore abbreviato, erecto, integro vel emarginato; inferiore majore, patente, trifido. Stamina 4, adscendentia, e labio superiore exserta; antheræ longiorum dimidiatæ, breviorum biloculares, loculis parallelis, transversalibus. Stylus apice subæqualitèr bifidus. Achenia lævia.

1. *A. malabarica* (Br.), caule erecto, fruticoso, tomentoso; foliis lanceolatis, serratis, basi integerrimis, subtùs densè tomentosis; verticillastris densis, globosis, remotè spicatis; foliis floralibus, bracteis dentibusque calycinis lineari-subulatis.—*Ajuga fruticosa,* Roxb. Hort. Beng. p. 44. *Nepeta malabarica,* Linn. Mant. p. 566.

α ex omni parte densè cano-tomentosa.

β *nigrescens,* tomentoso-villosa, foliis suprà nigrescentibus.

Hab. α in Malabaria, Penang. β ad ripas Irawaddi.

2. *A. ovata* (Br. in Ait. Hort. Kew. p. 364), villosa; foliis petiolatis, ovatis, irregularitèr crenatis, floralibus conformibus, supremis angustioribus, verticillastro sæpè brevioribus; verticillastris densis, globosis, remotè spicatis; calycis villosi dentibus lanceolatis, acutis.—*Nepeta indica,* Linn. Sp. Pl. p. 799. *Nepeta amboinica,* Linn. Suppl. p. 273. *Ballota disticha,* Linn. Mant. p. 83. *Ajuga disticha,* Roxb. l. c.

β *glabrata,* ex omni parte glaberrima.—*A. glabrata,* Benth. in Wall. Cat. Herb. Ind. n. 2041.

γ. *mollissima,* villosior; verticillastris supremis approximatis; foliis floralibus ovatis, caulinis conformibus, verticillastros superantibus.—*A. mollissima,* Wall. Cat. Herb. Ind. n. 2039.

Hab. α et β in Napalia. γ Prome, Taong Dong et Sillet.

3. *A. candicans* (Benth. in Wall. Cat. Herb. Ind. n. 2038), canotomentosa; foliis petiolatis, ovatis vel ovato-oblongis, grossè crenatis, basi attenuatis, floralibus (inferioribus exceptis) verticillastro brevioribus; verticillastris elongatis, cymosis, subsecundis; calycibus tomentosis, elongatis, dentibus lanceolatis; bracteis linearibus.

The specimens of this plant are not so satisfactory as might be wished, yet there appears to me to be sufficient to show that they cannot belong either to *A. ovata* or to *A. malabarica.*

Hab. Yenangheun ripæ Irawaddi.

4. *A. Heyneana,* glabra, ramosa, parcè foliosa; foliis oblongis, acutis, serratis, basi attenuatis: florum cymis longè pedunculatis, secundis, paucifloris; bracteis parvis, linearibus; calycis dentibus lanceolato-linearibus.—*Teucrium secundum,* Heyne in Wall. Cat. Herb. Ind. n. 2028.

Hab. . . . .

The long branches apparently divaricate or ascendent, the small size of the leaves, and the secund pedunculate cymes of this plant, give it a habit somewhat different from that of the other species of the genus; but, upon an examination of the flower, I find it has all the characters of *Anisomeles.*

Tribus 4. NEPETEÆ, *Benth. in Bot. Reg. vol.* 15. *ad calc. n.* 1289.

§. 1. Calyx æqualis vel obliquus, 5—10-dentatus, nec bilabiatus. Stamina e tubo exserta, antheris perfectis.

XVI. Leonotis, *Br. Prodr. p.* 504.

Calyx ovatus, 10-nervius, obliquè 8—10-dentatus, intùs fauce nudâ. Corolla tubo exserto, bilabiata, labio superiore erecto, elongato, fornicato, inferiore brevissimo, reflexo-patente, 3-fido. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis subconfluentibus. Styli lobus superior brevissimus. Stigmata minuta. Achenia sicca, lævia.

1. *L. nepetæfolia* (Br. l. c.), herbacea, canescenti-tomentosa; caule crasso, tetragono, quadrisulcato; foliis ovato-subcordatis, irregularitèr serratis; verticillastris densis, globosis, multifloris; bracteis lineari-subulatis, spinosis; calycibus striatis, obliquè 7-dentatis, spinulosis, dente supremo producto, rigido.—*Phlomis nepetæfolia,* Linn. Sp. Pl. p. 820.

Corolla duplò brevior quàm in *L. Leonuro, ovata,* et *intermedia,* calyce vix duplò longior. Flores in quoque verticillastro densissimi, numerosi, ultrà 100.

Hab. in Sillet, Coromandelia.

XVII. Leucas, *Br. Prodr. p.* 504.

Calyx ovatus vel cylindricus, 10-nervius, æqualis vel ore obliquus, 8—10-dentatus, fauce intùs nudâ vel villosâ. Corolla tubo calycem subæquante, bilabiata, labio superiore erecto, ovato, fornicato, integro, extùs villosissimo, inferiore patente, trifido, lobo medio integro. Stamina 4, sub labio superiore adscendentia. Antheræ loculis divaricatis, confluentibus, subuniloculares. Styli lobus superior brevissimus. Stigmata minuta. Achenia sicca, lævia.

§ 1. *Hemistoma*, Ehrenb. MSS.—Calyx tubulosus, ore obliquo, infernè producto, suprà fisso. Verticillastri nunc globosi, multiflori, bracteis calyci subæqualibus; nunc laxi, pauciflori, bracteis minutis.

1. *L. urticæfolia* (Br. Prodr. p. 504), caule herbaceo, brevissimè canescenti-tomentoso; foliis petiolatis, ovatis, grossè dentatis, glabriusculis vel cano-pubescentibus; verticillastris multifloris, globosis, remotis; bracteis lineari-lanceolatis, acutis, ciliatis, calycibus villosis, ore obliquo, infernè producto, membranaceo, glabro, suprà fisso, dentibus 8—10, abbreviatis, acutis, inferioribus majoribus.—*Phlomis urticæfolia*, Vahl. Symb. 3. p. 76. *Leucas membranacea*, Benth. in Wall. Cat. Herb. Ind. n. 2052. *Hemistoma ovatum*, Ehrenb. MSS.

Hab. in Bundlecund et Travancore.

The *L. indica* Br. (*Phlomis indica* Linn.) differs from this plant by its stem and its rugose leaves thickly clothed with a silky down; by its calyxes being much larger, with the three lower nerves terminated in short teeth, the upper ones scarcely, if at all, projecting beyond the margin. It is not in Dr. Wallich's collections. The *L. glabrata* Br. (*Phlomis glabrata* Vahl), from the south-eastern coast of Africa, has the calyx of this section, though in habit it comes near the *L. procumbens* and others of the section *Ortholeucas*.

§ 2. *Plagiostoma.*—Calyx turbinatus vel tubulosus, ore obliquo, supernè productiore. Verticillastri sæpiùs globosi, multiflori, solitarii vel pauci, supremis nunc capitatis. Bracteæ calycibus æquales vel paullò breviores.

2. *L. martinicensis* (Br. Prodr. p. 504), herbacea; caule erecto, parcè ramoso, tomentoso-pubescente, tetragono, sulcato; foliis brevitèr petiolatis, ovatis vel oblongis, basi attenuatis, crenatis, pubescentibus; verticillastris globosis, densè multifloris, remotis, bracteis subulatis, calyce paullò brevioribus; calycibus tubulosis, incurvis, basi membranaceis, apice striatis, villosis, ore obliquo, dentibus subulatis, rigidis, supremo longissimo.—*Phlomis martinicensis*, Sw. Prod. p. 88. *Phlomis caribæa*, Jac. Ic. Rar. 1. t. 110. *Leucas polycephala*, Wall. Cat. Herb. Ind. n. 2051.

Hab. in monte Taong Dong.

This plant is also found in Brasil and in the West Indies, where however it is probably not indigenous, but naturalized since the discovery of the New World.

3. *L. decurva* (Benth. in Wall. Cat. Herb. Ind. n. 2050), herbacea, canescens; foliis subsessilibus, ovatis vel ovato-oblongis, crenatis; verticillastris densè multifloris, remotis; bracteis oblongis vel lanceolatis, calyce fructifero dimidiò brevioribus; calycibus pubescentibus, elongatis, striatis, decurvis, ore obliquo, reflexo, dentibus lineari-subulatis vix inæqualibus.

A *L. nutante* differt calycibus longioribus, magìs decurvis, bracteis lanceolatis nec subulatis, corollâ minore, tubo filiformi.

Hab. ad Segain ripæ Irawaddi.

4. *L. nutans* (Spr. Syst. 2. p. 743), herbacea; caule erecto, piloso, ramoso; foliis petiolatis, oblongis vel oblongo-linearibus, grossè serratis, basi attenuatis, utrinque villosis; verticillastris subsolitariis vel approximatis, globosis, densè multifloris; bracteis subulatis, ciliatis, calyce fructifero dimidiò brevioribus; calycibus tubulosis, demùm elongatis, decurvis, striatis, pilosis, ore obliquo, dentibus abbreviatis, setaceis, vix inæqualibus.—*Phlomis nutans*, Roth Nov. Pl. Sp. p. 203.

Hab. ad ripas Irawaddi.

5. *L. Cephalotes* (Spr. Syst. 2. p. 743), herbacea; caule pubescente, ramoso, folioso; foliis petiolatis, oblongis, serratis, basi attenuatis, pubescentibus; verticillastris subsolitariis, terminalibus, densè multifloris, globosis; bracteis ovato-lanceolatis, acutis, nervosis, calycem æquantibus; calycibus villosis, tubulosis, apice striatis, ore obliquo, dentibus subulatis vix inæqualibus.—*L. capitata*, Desf. Mem. Mus. 11. p. 8. t. 4. *Phlomis cephalotes*, Roth Nov. Pl. Sp. p. 262.

Hab. in Napalia; ad ripas Gangis.

The bracteæ are usually rather larger and more closely appressed than is represented in Desfontaines's figure, which is otherwise very good.

6. *L. Plukenetii* (Spr. Syst. 2. p. 743 ?), herbacea; caule erecto, piloso, ramoso; foliis brevitèr petiolatis, oblongis, grossè serratis, basi attenuatis; pubescenti-villosis; verticillastris subsolitariis vel paucis, remotis, densè multifloris, globosis; bracteis subulatis, ciliatis, calycem subæquantibus; calycibus turbinato-tubulosis, incurvis, basi glabris, apice striatis, pilosis, ore obliquo, dentibus abbreviatis, acutis, vix inæqualibus.—*Phlomis Plukenetii*, Roth Nov. Pl. Sp. p. 261 ? *Leucas cephalotes* No. 2, Benth. in Wall. Cat. Herb. Ind. n. 2043. *Phlomis esculenta*, Roxb. l. c.

Hab. in Hindustania.

This plant agrees very well with Roth's description, except in the stem, which is always hairy. In Dr. Hooker's and other herbaria I have seen a variety from the Mauritius, which has the leaves scarcely serrate and the flowers rather larger.

Blume's *Phlomis cephalotes* (Bijdr. p. 830) appears to be a very different plant from Roth's *P. cephalotes.* From a specimen in Smith's herbarium brought by Commerson from Java, and another in the Banksian herbarium from the Garden of Amsterdam, both of which agree with Blume's description, I should consider his plant as a distinct species intermediate between the *L. zeylanica*, of which it has in many respects the habit and foliage, and the *L. Plukenetii*, of which it has the inflorescence. The calyx is less hairy and more oblique than in the *L. Plukenetii.* In the Banksian herbarium it bears Solander's MS. name of *Phlomis media*, which specific name it might aptly retain in transferring it to the genus *Leucas.*

7. *L. zeylanica* (Br. Prodr. p. 504.), herbacea; caule erecto, piloso, ramoso; foliis brevitèr petiolatis, oblongis vel oblongo-linearibus, integerrimis vel remotè serratis, basi attenuatis, subglabris; verticillastris paucis, supremis capitatis, laxè multifloris, globosis; bracteis subulatis, ciliatis, calyce subbrevioribus; calycibus turbinatis, glabris, ore obliquo, dentibus abbreviatis, supremis majoribus.—*Phlomis zeylanica*, Linn. Sp. Pl. 820, non Roth, nec Roxb. *Leucas involucrata*, Benth. in Wall. Cat. Herb. Ind. n. 2047.

Hab. in Pegu et in Ceylona.

I have compared this plant with the original specimens of *Phlomis zeylanica* in Burmann's Ceylon herbarium, and also with Linnæus's specimen in his own herbarium, where however he has subsequently added a garden specimen of the *L. Plukenetii.* The plant sent by Roxburgh and others as the *Phl. zeylanica*, is the *L. linifolia*, and that described by Roth appears to be a variety of his *Phl. dimidiata.*

8. *L. linifolia* (Spr. Syst. 2. p. 743), herbacea; caule erecto, cano-pubescente, ramoso; foliis brevitèr petiolatis, oblongo-linearibus, remotè serratis, basi attenuatis, canescentibus; verticillastris paucis, globosis, densè multifloris, superioribus approximatis; bracteis subulatis, ciliatis, calyce fructifero dimidiò brevioribus; calycibus glabris, turbinatis, ore obliquo, dentibus acutis, supremo maximo.—*Phlomis linifolia*, Roth Nov. Pl. Spec. p. 260. *P. zeylanica*, Roxb. l. c.

"Flowers white.—This plant has a pleasant aromatic smell; its flowers are used by the Brahmins to decorate their deity Iswara," *Roxb. MSS.*

Hab. in Sillet Bengalæ, et in Mauritio.

9. *L. Wightiana*, herbacea; caule erecto, ramoso, glabriusculo vel pilis raris, obversis pubescente; foliis subsessilibus, oblongo-linearibus, utrinque attenuatis, integerrimis, glabriusculis; verticillastris parvis, distinctis vel supremis approximatis, globosis, densè multifloris; bracteis linearibus, ciliatis, calyces subæquantibus; calycibus turbinatis, villoso-hispidis, ore obliquo, dentibus abbreviatis, acutis, vix inæqualibus.

Hab. . . . . Herb. Wight.

10. *L. hyssopifolia* (Benth. in Wall. Cat. Herb. Ind. n. 2044),

herbacea; caulibus cæspitosis, subsimplicibus, tetragonis, hispidis; foliis oblongo-lanceolatis vel linearibus, obtusis, subintegerrimis, nervosis, hispidis; verticillastris 6—10-floris, globosis; bracteis linearibus, ciliatis, calyce subbrevioribus; calycibus turbinatis, glabris vel apice vix pilosis, ore obliquo, truncato, dentibus minutis, æqualibus, setaceis.

Statura et folia ferè *Prunellæ hyssopifoliæ*, pars caulis persistens crassa, sublignosa.

Hab. in Napalia, Kamaon.

11. *L. dimidiata* (Spr. Syst. 2. p. 743), herbacea; caule diffuso, tetragono, sulcato, piloso; foliis subsessilibus, oblongo-lanceolatis, obtusis, subintegerrimis, hispido-pilosis; verticillastris remotis, 10—15-floris, dimidiatis; bracteis linearibus, ciliatis, calyce brevioribus; calycibus oblongis vel turbinatis, incurvis, basi glabris, apice striatis, pilosis, ore obliquo, dentibus subæqualibus, setaceis vel subulatis, subpungentibus.—*Phlomis dimidiata*, Roth Nov. Pl. Sp. p. 264. *Phlomis zeylanica*, Roth Nov. Pl. Sp. p. 260 non Linn.

This appears to be a very variable plant. The leaves resemble those of *L. hyssopifolia*, but are smaller; the verticillastri are constantly dimidiate, the teeth of the calyx are sometimes very short, more frequently nearly as long as the breadth of the calyx.

Hab. . . . . (Herb. Madr., Rottl. et Wight.)

12. *L. stricta* (Benth. in Wall. Cat. Herb. Ind. n. 2045), herbacea; caule erecto, stricto, ramoso, parcè folioso, piloso, foliis subsessilibus, oblongo-linearibus, acutis, subintegerrimis, glabriusculis vel piloso-hispidis; verticillastris ad apicem ramorum subsolitariis, globosis, densè multifloris; bracteis subulatis, ciliatis, calycem subæquantibus; calycibus turbinato-tubulosis, basi glabris, apice striatis, pilosis, ore obliquo, dentibus setaceis, superioribus longioribus, demùm substellato-patulis.—*Phlomis stricta*, Herb. Heyne.

This species appears intermediate between the *L. hyssopifolia*, or *dimidiata* of the section *Plagiostoma*, and the *L. ciliata* of *Astrodon*, thus connecting the two sections. The stems are about a foot high, with very few leaves; the verticillastri terminal, with a pair of very long leaves proceeding from their base, and sometimes another pair from their centre.

Hab. . . . . (Herb. Heyne.)

The *Leucas aspera*, Spr. Syst. 2. p. 743, (*Phlomis aspera* Willd.) belongs also to this section.

§. 3. *Astrodon.*—Calyx tubulosus, ore æquali, fauce sæpiùs villosissimâ. Verticillastri sæpiùs globosi, multiflori, solitarii vel pauci, supremis nunc capitatis. Bracteæ calycibus vix breviores.

13. *L. ciliata* (Benth. in Wall. Cat. Herb. Ind. n. 2046), herbacea; caule erecto, ramoso, retrorsùm piloso; foliis petiolatis, elliptico-vel ovato-oblongis, attenuatis, crenatis vel serratis; verticillastris densè multifloris, globosis, distinctis; bracteis lineari-subulatis, ciliatis, calycem subæquantibus; calycibus ovatis, truncatis, pubescentibus, ore æquali, fauce intùs nunc villosissimâ, nunc subnudâ, dentibus subulatis, ciliatis, stellato-patulis.—*Phlomis ciliata*, Herb. Heyne.

Hab. Napalia.

14. *L. stelligera* (Wall. Cat. Herb. Ind. n. 2049), herbacea; caule erecto, pubescenti; foliis petiolatis, elliptico-oblongis, vel superioribus oblongo-linearibus, utrinque attenuatis, crenatis vel serratis, glabriusculis, canescentibus, nervosis; verticillastris densè multifloris, ad apice ramorum solitariis, vel binis ternisve fastigiatis, bracteis lineari-lanceolatis, ciliatis, villosis, apice hamatis; calycibus tomentosis, ore æquali, fauce intùs villosissimâ, dentibus subulatis, rigidis, recurvo-stellatis, ciliatis.

Hab. Aurungabad.

15. *L. rosmarinifolia*, suffrutex (?); caule villoso, subtereti; foliis sessilibus, linearibus, obtusis, integerrimis, margine revolutis, suprà tuberculoso-villosis, subtùs cano-tomentosis; verticillastris subsolitariis, terminalibus, sub-10-floris; bracteis oblongis, acutis, calyces superantibus; calycibus ovato-tubulosis, truncatis, ore æquali, fauce intùs villosissimâ, dentibus minutis, demùm substellatis.

Hab. . . . . (Herb. Wight.)

16. *L. helianthemifolia* (Desf. Mem. Mus. 11. p. 2. t. 1. f. 1.), suffrutex (?); ramis rufescenti-villosis; foliis subsessilibus, elliptico-oblongis, utrinque attenuatis, integerrimis vel remotè crenatis, nervosis, suprà hispidis, subtùs villosis; verticillastris approximatis, subcapitatis, densè multifloris; bracteis linearibus, demùm calyce brevioribus; calycibus ovatis, subinflatis, tomentosis, ore æquali, fauce villosissimâ, dentibus linearibus, demùm recurvo-patulis.—*Phlomis hirta*, Heyne MS.—an Roth Nov. Sp. Pl. p. 264? *Leucas hirta*, Spreng. Syst. vol. 2. p. 743? *L. rufescens*, Benth. in Wall. Cat. Herb. Ind. n. 2053.

Hab. . . . . (Herb. Heyn. Madr. et Wight.)

The *L. ternifolia* (Desf. Mem. Mus. 11. p. 4. t. 1. f. 2.), which is not in Dr. Wallich's collection, belongs to this section, and should be placed next the *L. helianthemifolia.*

17. *L. lanceæfolia* (Desf. Mem. Mus. 11. p. 5. t. 2. f. 2.), herbacea (?); caule erecto, rufo-tomentoso; foliis petiolatis, oblongis, utrinque attenuatis, integerrimis, venosis, suprà villosis, subtùs densè cano-tomentosis; verticillastris globosis, distinctis, densè multifloris; bracteis linearibus, acutis, subspinosis, calyces æquantibus; calycibus ovatis, tomentosis, ore æquali, fauce intùs subvillosâ, dentibus abbreviatis, acutissimis, demùm stellato-patulis.

Hab. . . . . (Herb. Wight.)

18. *L. vestita*, herbacea; caule erecto, ramoso, pilis rufis hirsutissimo; foliis petiolatis, ovatis vel ovato-lanceolatis, crenatis, utrinque viridibus, densè rufo-villosis; verticillastris distinctis, globosis, densè multifloris; bracteis linearibus, acutis, ciliatis, calycem æquantibus; calycibus ovatis, villosis, ore æquali, fauce intùs rufo-villosissimâ, dentibus subulatis, stellato-patulis, ciliatis; corollæ pilis rufis.

Hab. in Sillet.

The *L. lamiifolia* (Desf. Mem. Mus. 11. p. 4. t. 2. f. 1.) is also an *Astrodon*, and appears to differ from the last species chiefly by its leaves, cordate at the base, and clothed underneath with a silky down.

§ 4. *Ortholeucas.*—Calyx tubulosus, ore æquali, fauce subnudâ. Verticillastri sæpiùs pauciflori, remoti. Bracteæ minutæ, setaceæ.

19? *L. marrubioides* (Desf. Mem. Mus. 11. p. 6. t. 3. f. 1.), herbacea (?); caule tetragono, lanato-pubescente; foliis petiolatis, ovatis vel ovato-oblongis, basi subcordatis, grossè crenatis, suprà pubescentibus, subtùs lanatis; verticillastris globosis, densè multifloris, remotis, supremis folia floralia superantibus; bracteis linearibus, calyce subdimidiò brevioribus; calycibus tubulosis, striatis, villosis, ore æquali, vel vix obliquo, dentibus 10, abbreviatis, setaceis, erectis.

β. glabrior.

Hab. . . . . (Herb. Madr.) et in Ceylona (Herb. Lindl.). β. . . . . (Herb. Wight.)

This plant scarcely belongs to this section, but cannot well be placed in either of the two preceding ones, of the characters of which it partakes.—The verticillastri are 30- or 40-flowered at least; the bracteæ are often scarcely shorter than the calyx.

20. *L. lanata* (Benth. in Wall. Cat. Herb. Ind. n. 2055.), suffrutex; caule ramoso, densè sericeo-lanato, foliis petiolatis, ovatis, crenatis, rugosis, utrinque densè sericeo-lanatis; verticillastris laxiusculis, multifloris, remotis; bracteis minutis, setaceis; calycibus tubulosis, striatis, ore æquali, dentibus brevissimis, erectis.—*Marrubium mollissimum*, Don. Prodr. Fl. Nepal. p. 112?

"Flores cærulei. Odor gratus debilis." Wall. MSS.

Hab. in Kamaon, Sirmore et in valle Dhoon dicta.

21. *L. montana* (Spr. Syst. 2. p. 742.), suffrutex; ramis tomentosis; foliis breviter petiolatis, ovatis, crenatis, obtusis, subtùs sericeo-lanatis, suprà villosis; verticillastris laxiusculis, multifloris, remotis; bracteis minutis, setaceis; calycibus striatis, sericeo-tomentosis, ore æquali, dentibus brevissimis, setaceis, erectis.—*Phlomis montana*, Roth Nov. Pl. Spec. p. 263.

Hab. . . . . (Herb. Heyne.)

22. *L. ovata* (Benth. in Wall. Cat. Herb. Ind. n. 2057.), suffrutex (?); ramis tomentosis; foliis subsessilibus, ovatis, basi cordatis, vix crenatis, suprà glabriusculis, subtùs sericeo-lanatis; verticillastris sub-10-floris, laxiusculis, remotis; bracteis subulatis, calyce dimidiò brevioribus; calycibus striatis, villosis, ore æquali, dentibus setaceis, erectis.

A *L. montana* differt præsertim foliis basi cordatis, calycis dentibus longioribus, et aliis notis.

Hab. ad ripas Irawaddi.

23. *L. mollissima* (Wall. Cat. Herb. Ind. n. 2054), suffrutex; ramis quadrangulis, tomentosis; foliis subsessilibus, ovatis, crenatis, rugosis, utrinque tomentoso-lanatis; verticillastris laxiusculis, multifloris, vel rameis paucifloris, remotis; bracteis minutis, setaceis; calycibus tubulosis, striatis, villosis, ore æquali, dentibus setaceis, erectis.

Calyx *L. ovatæ* a qua differt foliis multò minoribus, rugosis, crenatis, basi vix cordatis, utrinque tomentosis; a *L. lanata* differt caule foliisque mollitèr tomentosis, viridibus, nec sericeo-lanatis. Corolla alba, teste Wall. MSS.

Hab. Napalia et in jugo Pundua dicto.

24. *L. Hamiltonii*, suffrutex (?); ramis tetragonis, tomentosis; foliis brevitèr petiolatis, ovatis, acutis, serratis, rugosis, suprà villosis, subtùs tomentosis; verticillastris remotis, paucifloris; bracteis minutis, setaceis; calycibus tubulosis, striatis, subincurvis, tomentosis, ore æquali vel subobliquo, dentibus brevissimis, setaceis.—*Phlomis Rodantia*, Herb. Hamilt.

Hab. ad Monghir.

Affinis *L. mollissimæ*, sed differt foliis multò majoribus, verticillastris vix 6-floris, calycibus longioribus, subincurvis, &c.

25. *L. chinensis* (Br. Prodr. p. 504?), suffrutex; ramis quadrangulis, tomentosis; foliis brevitèr petiolatis, ovatis, serratis, rugosis, utrinque tomentosis; verticillastris sub-bifloris, remotis; bracteis minutis, setaceis; calycibus brevitèr pedicellatis, striatis, tomentoso-villosis, apice dilatatis, ore æquali, dentibus ovato-lanceolatis, subfoliaceis, acutis.—*Phlomis chinensis*, Retz. Obs. 2. p. 19?

Calyx ferè *Beringeriæ;* corolla, stamina, stylus, et habitus omninò *Leucadis.*

Hab. . . . . (Herb. Wight.)

26. *L. teres* (Benth. in Wall. Cat. Herb. Ind. n. 2060), suffrutex (?); ramis tomentosis, teretibus; foliis brevitèr petiolatis, ovatis, parcè crenatis, suprà viridibus, subtùs canescentibus, vix rugosis; verticillastris laxè 6—10-floris, remotis; bracteis minutis, setaceis; calycibus striatis, villosis, ore æquali, dentibus setaceis.

Affinis *L. mollissimæ*, a qua differt ramis teretibus, foliis minoribus, vix rugosis, suprà glabriusculis, floribus in verticillastris paucioribus, minoribus.

Hab. ad ripas Irawaddi.

27. *L. nepetæfolia*, herbacea (?); caule tetragono, brevissimè tomentoso, ramoso, folioso; foliis petiolatis, ovato-rotundatis, crenatis, canescenti-tomentosis; verticillastris laxè paucifloris, bracteis minutis, setaceis, calycibus campanulato-tubulosis, striatis, glabriusculis, ore æquali; dentibus lato-lanceolatis, acutis.

Hab. . . . . (Herb. Madr.)

28. *L. melissæfolia* (Benth. in Wall. Cat. Herb. Ind. n. 2062), herbacea; cano-pubescens; foliis longè petiolatis, ovato-rotundatis, crenatis; verticillastris paucifloris, remotis; bracteis minutis, setaceis; calycibus petiolo duplò brevioribus, tubulosis, striatis, pubescentibus, ore æquali, dentibus setaceis.

Hab. ad ripas Irawaddi.

29. *L. pilosa* (Benth. in Wall. Cat. Herb. Ind. n. 2058), herbacea; caule ramoso, tetragono, obversè piloso; foliis brevitèr petiolatis, ovatis, crenatis, piloso-hirsutis, floralibus oblongis, supremis integerrimis; verticillastris remotis, laxiusculis, 6—20-floris; bracteis minutis, setaceis; calycibus striatis, villosis, ore æquali, dentibus setaceis.—*Phlomis pilosa*, Roxb. Hort. Beng. p. 43.

β? cano-pubescens.

Corolla purpurascens.

Hab. *α.* ad ripas Irawaddi. *β.* Rajemahl.

30. *L. strigosa* (Benth. in Wall. Cat. Herb. Ind. n. 2059), herbacea; caule acutè quadrangulo, strigoso-piloso; foliis subsessilibus, lanceolato-oblongis, remotè serratis, supremis integerrimis, suprà strigoso-hispidis, subtùs tomentosis; verticillastris 2—6-floris, remotis; bracteis minutis, setaceis; calycibus tubulosis, striatis, villosis, ore æquali, dentibus setaceis.

Hab. Prome.

Huic affinis *L. angularis*, herbacea, ramis acutè tetragonis, angulis ciliatis, subalatis; foliis brevitèr petiolatis, ovatis, crenatis, rugosis, utrinque strigoso-hispidis; verticillastris bifloris; bracteis minutis, setaceis; calycibus campanulatis, villosis, ore æquali, dentibus setaceis; ex Ceylona. (*Herb. Lindley.*)

31. *L. parviflora* (Benth. in Wall. Cat. Herb. Ind. n. 2061), herbacea; caule erecto, tetragono, pilis reflexis pubescente; foliis petiolatis, ovatis, serratis, cano-pubescentibus; verticillastris laxè paucifloris, remotis; bracteis minutis, setaceis; calycibus tubulosis, striatis, cano-pubescentibus, ore subæquali, irregularitèr setaceo-dentato.

Folia parva. Verticillastri sæpiùs 6—10-flori. Calyces duplò minores quàm in *L. biflora* et *procumbente.* Corolla purpurascens.

Hab. ad ripas Irawaddi.

32. *L. biflora* (Br. Prodr. p. 504.), herbacea; caule procumbente, debili, tetragono, pilis reflexis pubescenti; foliis petiolatis, ovatis, crenatis, glabriusculis vel cano-pubescentibus; verticillastris subbifloris, remotis; bracteis minutis, setaceis; calycibus brevitèr pedicellatis, tubuloso-subcampanulatis, striatis, pubescentibus, ore æquali, dentibus subulatis.—*Phlomis biflora*, Vahl. Symb. 3. p. 77.

Hab. . . . . (Herb. Madr. et Wight.). In Ceylona.

33. *L. procumbens* (Desf. Mem. Mus. 11. p. 7. t. 3. f. 2.), herbacea; caule debili, procumbente, glabriusculo, tetragono; foliis petiolatis, ovatis vel ovato-oblongis, integerrimis vel serratis, glabriusculis; verticillastris laxè 2—1-floris, remotis; bracteis minutis, setaceis; calycibus brevitèr pedicellatis, tubuloso-subcampanulatis, striatis, glabris, ore æquali, dentibus subulatis.—*L. biflora*, Benth. in Wall. Cat. Herb. Ind. n. 2063, non Br. *Phlomis biflora*, Roxb. Hort. Beng. p. 43. nec Vahl.

Hab. ad Bolahat, Patgong, Travancore, et in Ceylona.

34. *L. angustifolia* (Wall. Cat. Herb. Ind. n. 2064.), herbacea; caule debili, procumbente, glabriusculo, tetragono; foliis petiolatis, oblongo-linearibus, remotè serratis, glabris; verticillastris laxè multifloris, remotis; bracteis minutis, setaceis; calycibus tubulosis, striatis, glabriusculis, ore æquali, dentibus abbreviatis, setaceis.

A *L. biflora* et *procumbente* differt verticillastris sæpiùs 10-floris et ultrà, calycibus duplò minoribus, tubulosis nec ore dilatatis, dentibus multò brevioribus. A *L. parviflora* foliorum formâ et habitu distinguitur.—"Corolla resupinata," Wall. MSS.

Hab. in Napalia.

The *Leucas stachyoides*, Spr. Syst. p. 743, and *L. flaccida* Br. Prodr. p. 505, appear to belong both of them to the section *Ortholeucas*, to which should also be added an unpublished species in the Banksian herbarium, brought by F. Masson from the Cape, and to which Solander gave the MS. name of *Phlomis parvifolia.* In transferring it to the genus *Leucas*, in order to prevent any confusion, it might be called, after its discoverer, *L. Massoniana.* It is a small shrub with downy branches, small glabrous leaves, calyces solitary, opposite, tubular and very irregularly toothed at the mouth.

XVIII. PHLOMIS, *Br. Prod. p.* 504.

Calyx tubulosus, 10-nervius, 5-gonus, æqualis, 5-dentatus, intùs fauce nudâ vel villosâ. Corolla tubo calycem subæquante, bilabiata, labiis subæqualibus, superiori compresso, galeato, incumbente, integro vel emarginato, inferiori patente, trifidò, lobis lateralibus minimis, medio integro. Stamina 4, sub labio superiore ascendentia. Antheræ biloculares, loculis divaricatis, subconfluentibus. Styli lobus superior brevissimus. Stigmata minuta. Achenia sicca, lævia.

1. *P. macrophylla* (Wall. Cat. Herb. Ind. n. 2065), herbacea; caule erecto, crasso, tetragono, sulcato, glabro vel parcè villoso; foliis longè petiolatis, amplis, hastato-cordatis, crenatis, rugosis, suprà hispidis, subtùs tomentosis, floralibus minoribus, subsessilibus, basi attenuatis; verticillastris densè multifloris, remotis; bracteis linearibus, rigidis, acutis, ciliatis, calyces æquantibus; calycibus tubulosis, angulatis, marginibus inter dentes 5-rigido-subulatos, membranaceo-productis, fauce intùs nudâ; corollis calyce vix duplò longioribus, labio superiori villosissimo; staminum superiorum filamentis appendiculatis.

"Corolla alba," Wall. Affinis *P. Herba-Venti*, *tuberosæ* et *alpinæ.*

Hab. Gossain Thau.

2. *P.? breviflora* (Benth. in Wall. Cat. Herb. Ind. n. 2066),

herbacea (?); caule erecto, tetragono, glabriusculo; foliis petiolatis, amplis, ovatis, acuminatis, serratis, basi subcordatis, nervosis, suprà brevitèr hispidis, subtùs glabris, floralibus conformibus; verticillastris multifloris, remotis; bracteis linearibus, obtusis, sulcatis, subglabris; calycibus ovato-truncatis, subincurvis, glabriusculis, dentibus 5 brevibus, acutis, margine interdentali membranaceo, 10-crenato, fauce intùs nudâ; corollis calyce dimidiò longioribus, labio superiore villosissimo; staminibus e tubo vix exsertis, filamentis nudis.

Stylus omninò generis, sed achenia vix sicca videntur. Characteribus et habitu a *Phlomidibus* veris paullò recedit.

Hab. Gossain Than.

3. *P.*? *rugosa* (Wall. Cat. Herb. Ind. n. 2067), frutex; ramis tetragonis, brevitèr tomentosis; foliis ad apicem ramorum approximatis, longè petiolatis, oblongis, acutis, serratis, basi attenuatis, glabriusculis, subcarnosis, nervosis; verticillastris multifloris, remotis; bracteis subulatis, calycem subæquantibus; calycibus oblongis, basi contractis, subenerviis, dentibus 5 lanceolato-linearibus, patentibus, margine non membranaceo-producto, fauce intùs nudâ; corollis calycem paullò superantibus, subglabris; staminum filamentis nudis.

"Corolla flavescens" *Wall. MSS.* Labium superius vix compressum, fornicatum, extùs ferè glabrum. Stamina et stylus *Phlomidis*, a qua calyce et habitu recedit.

Hab. in montibus Pundua.

XIX. Notochæte, *Benth. in Bot. Reg. v.* 15, *ad calc. num.* 1289.

Calyx tubulosus, 5-nervius, 5-dentatus, intùs fauce nudâ, nervis sub apice dentium in setam hamatam productis. Corolla tubo calycem subæquante, bilabiata, labiis subæqualibus, superiore erecto, fornicato, integro, inferiore patente, trifido, lobo medio integro. Stamina 4, sub labio superiore adscendentia: filamenta superiorum basi sub insertione brevitèr calcarata. Antheræ biloculares, loculis demùm divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

1. *N. hamosa* (Benth. in Wall. Cat. Herb. Ind. n. 2068.)

Herbacea. Caulis erectus, ramosus, obsoletè tetragonus, brevissimè pubescens. Folia longè petiolata, ovata, acuminata, serrata, basi obliquè attenuata, nervosa, glabriuscula, juniora subtùs tomentosa. Verticillastri remoti, globosi, densè multiflori, lappacei. Bracteæ lineari-subulatæ, apice revoluto-hamosæ, glaberrimæ, lucidæ, calyce sublongiores. Calyx basi tomentosus, dentibus corollam superantibus, uti bracteæ apice revolutis, hamosis.

Hab. Napalia.

XX. Roylea, *Wall. ex Benth. in l. c.* et suprà, pag. 57.

1. *R. elegans* (Wall. Cat. Herb. Ind. n. 2069, et suprà.); *Ballota cinerea* (Don. Prodr. Fl. Nepal. p. 111 ?).

Hab. Choor, mons.

XXI. Eriophyton, *Benth. in l. c.*

Bracteæ subulatæ, non spinosæ[*]. Calyx amplus, campanulatus, æqualis, dentibus 5 ovatis, subspinosis. Corolla tubo calyce subbreviore, bilabiata, labio superiore amplo, galeato, compresso, emarginato, inferius abbreviatum, trifidum involvente. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

1. *E. Wallichii* (Benth. in Wall. Cat. Herb. Ind. n. 2070.)

Herbacea, ex omni parte densissimè lanâ longâ, niveâ, mollissimâ obtecta. Caules erecti, pedales, subsimplices; apice incrassati, carnosi. Folia subsessilia, ovato-cuneata, apice crenata, floralia majora, sessilia, lato-rhomboidea, grossè serrata, flores superantia. Verticillastri in spicam terminalem approximati, sub-6-flori. Corolla flava (?), calyce dimidiò longior; labium superius lanuginosum. Bracteæ subulatæ, calyce breviores, lanâ foliorum floralium et calycum omninò reconditæ.

Hab. Gossain Than.

XXII. Leonurus, *Linn. Gen.* 722.

Calyx ovatus vel campanulatus, 5—10-nervius, æqualis, dentibus 5 subulatis, intùs fauce nudâ. Corolla tubo subexserto, bilabiata, labiis subæqualibus, superiore erecto, integro, subplano vel fornicato, inferiore patente, trifido, lobo medio integro vel bifido. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis parallelis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca.

§. 1. Leonurus.—Corollæ labium superius subplanum, inferioris lobus medius integer.

1. *L. lacerus* (Lindl. Hort. Trans. 6. p. 296) herbacea; caule erecto, ramoso, obtusè tetragono, glabriusculo vel adpressè pubescente; foliis petiolatis, rugosis, pubescentibus, inferioribus sub-7-nerviis, rotundatis, basi cordatis, palmato-lobatis; lobis inciso-dentatis, superioribus 3—5-nerviis, basi integerrimis, attenuatis, apice lacero-dentatis; verticillastris sub-10-floris, inferioribus remotis, supremis approximatis, spicatis; bracteis minutis, setaceis; calycibus glabriusculis, dentibus patulis, rigidis; corollis calyce triplò longioribus, labio superiore subplano, villosissimo, inferioris lobo medio integro.

Affinis *L. cardiacæ*, a quo differt præsertim pubescentiâ, foliis rugosis, corollis longioribus, &c.

Hab. in Napalia unde, seminibus a Wallichio missis, in horto Societatis Horticulturalis Londinensis colitur.

2. *L. pubescens* (Benth. in Wall. Cat. Herb. Ind. n. 2072), herbacea; caule erecto, ramoso, tetragono, glabro vel angulis cano-pubescentibus; foliis petiolatis, 3—5-nerviis, pubescentibus, ovatis, acuminatis, inciso-serratis, inferioribus basi truncatis, superioribus attenuatis; verticillastris multifloris, remotis; bracteis subulatis, calyces æquantibus; calycibus glabris, dentibus subulatis, patentibus; corollis calyce subtriplò longioribus, labio superiore ovato, dilatato, subplano, inferioris lobo medio integro.

Hab. Kamaon.

3. *L.*? *Royleanus* (Benth. in Wall. Cat. Herb. Ind. n. 2073), herbacea; caule erecto, ramoso, tetragono, tomentoso, axillis pilosis; foliis petiolatis, sub-5-nerviis, ovatis, acuminatis, inciso-serratis vel sub-3—5-lobatis, suprà villosis, subtùs cano-tomentosis; verticillastris multifloris, inferioribus remotis, superioribus approximatis, spicatis; bracteis subulatis, glabris, calyces æquantibus; calycibus cano-tomentosis; dentibus subulatis, rigidis, patentibus.

Hab. in monte Choor, Royle.

§. 2. Panzeria, *Mœnch.*—Corollæ labium superius fornicatum, inferioris lobus medius emarginatus vel bifidus.

4. *L. sibiricus* (Linn. Sp. p. 818); caule erecto, ramoso, obtusè tetragono, brevitèr tomentoso; foliis petiolatis, trifidis, lobis oblongis, linearibus, inciso-dentatis vel pinnatifidis, utrinque pubescentibus; verticillastris densè multifloris, remotis, supremis subapproximatis, spicatis; bracteis subulatis, rigidis, calyce brevioribus; calycibus pubescentibus, dentibus erectis, subulatis, rigidis; corollis calyce duplò longioribus, labio superiore fornicato, inferioris lobo medio bifido.

Hab. Bengalia, Sillet.

XXIII. Lamium, *Linn. Gen.* 716.

Calyx campanulatus, subæqualis, 10-nervius, 5-dentatus, aristatus, intùs fauce nudâ. Corolla tubo exserto, fauce inflatâ, bilabiata, labiis subæqualibus, superiore erecto, integro, fornicato, inferiore patente, trifido, lobis lateralibus suberectis, anticè dentatis, medio emarginato. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis, margine extùs barbatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

1. *L. amplexicaule*, (Linn. Spec. p. 809); caule procumbente, ramoso, glabro; foliis pubescentibus, nervosis, rotundatis, inciso-crenatis, caulinis longè petiolatis, floralibus sessilibus, amplexicaulibus; verticillastris densè multifloris; calycibus villosis, dentibus subæqualibus, subulatis; corollis calyce quadruplò longioribus, tubo filiformi.

Hab. in Napalia, a speciminibus Europæanis nullo modo diversum.

XXIV. Stachys, *Linn. Gen.* 719.

Calyx ovato-campanulatus, 10-nervius, æqualis, 5-dentatus, intùs fauce nudâ, vel vix pilosâ. Corolla tubo calycem subæquante, bilabiata, labiis subæqualibus, superiore subpatente, integro, fornicato vel subplano, inferiore patente, trifido, lobo medio integro vel emarginato. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

---

[*] In describing this genus in the *Bot. Reg.* I had mistaken the floral leaves for bracteas.—B.

1. *S. sericea* (Wall. Cat. Herb. Ind. n. 2077), herbacea; caule erecto, ramoso, longè lanato-piloso; foliis caulinis petiolatis, oblongis, acutiusculis, crenatis vel serratis, basi subcordatis, superioribus sessilibus, floralibus minoribus, angustioribus, basi attenuatis, acutè serratis, omnibus rugosis, suprà adpresso-villosis vel lanatis, subtùs niveo-lanatis; verticillastris sub-10-floris, distinctis, laxè spicatis; bracteis linearibus, calyce vix brevioribus; calycibus lanatis, dentibus ovato-lanceolatis, acutis, pungentibus, demùm patentibus; corollæ tubo calycem æquante.

β. foliis minoribus, utrinque densè niveo-lanatis.

Affinis *S. alpinæ* vel *heracleæ*, sed multò elatior, et characteribus datis distincta.

Hab. Kamaon.

2. *S. splendens* (Wall. Cat. Herb. Ind. n. 2075), herbacea; caule erecto, ramoso, piloso; foliis inferioribus petiolatis, floralibus sessilibus, minoribus, omnibus ovatis, serratis, basi subcordatis, rugosis, villosis; verticillastris sub-10-floris, remotè spicatis; bracteis linearibus, calyce brevioribus; calycibus pubescentibus, nervosis, striatis, subincurvis, dentibus lanceolatis, obtusiusculis; corollæ tubo calyce dimidiò longiore, incurvo.

Hab. Gossain Than.

3. *S. oblongifolia* (Wall. Cat. Herb. Ind. n. 2076), herbacea; caule erecto, ramoso, tetragono, angulis pubescentibus vel villosis; foliis subsessilibus, oblongo- vel lanceolato-linearibus, acutis, serratis, basi subcordatis, rugosis, suprà villosis, subtùs canescentibus, lanatis vel villosis, floralibus conformibus, minoribus; verticillastris sub-6-floris, laxè spicatis; bracteis minutis, subnullis; calycibus pubescentibus, dentibus linearibus, acutis, non pungentibus; corollis vix exsertis, tubo subincurvo, calyce breviore.

Hab. Napalia et Sillet.

XXV. CYMARIA, *Benth. in Bot. Reg. v. 15. ad calc. n.* 1292.

Calyx subglobosus, sub-10-nervius, æqualis, 5-dentatus, fauce coarctatâ, intùs nudâ. Corolla tubo subexserto, bilabiata, labiis subæqualibus, superiore erecto, integro, fornicato, inferiore patente, trifido, lobo medio integro. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis demùm divaricatis. Styli lobus superior brevissimus. Stigmata minuta. Achenia sicca, punctato-rugosa.—Frutices. Calyx et inflorescentia ferè *Craniotomis*. Corolla et stylus *Phlomidibus* proximi. Genus habitu ad *Anisomelem* quodammodò accedit, sed characteribus calycis et corollæ longè diversum.

1. *C. dichotoma* (Benth. in Wall. Cat. Herb. Ind. n. 2080); foliis ovatis, suprà glabriusculis, vix rugosis; cymis laxis, paniculatis; pedunculo gracili, petiolo triplò quadruplòve longiore.

Frutex 2—3-pedalis, ramis quadrangulis, tomentosis. Folia brevitèr petiolata, ovata, utrinque attenuata, crenata, vix rugosa, glabra vel juniora subtùs tomentosa. Pedunculi axillares, oppositi, 1—2-pollicares, dichotomo-ramosi. Flores parvi, laxè cymosi, cymis racemoso-paniculatis. Bracteæ minutæ, setaceæ. Calyces vix pubescentes, demùm submembranacei, fauce coarctatâ, dentibus brevitèr ovatis, acutis, demùm patulis.

Hab. Taong Dong mons Avæ, et Segain.

2. *C. elongata* (Benth. l. c. n. 2079); foliis rugosis, utrinque tomentosis; cymis densis, brevitèr pedunculatis; racemo terminali, elongato, laxo.

A præcedente differt ramis elongatis, densè tomentosis, foliis breviùs petiolatis, sæpiùs basi rotundatis, nervoso-rugosis, densè tomentosis, suprà viridibus, subtùs canescentibus. Cymæ florum numerosæ, in racemum elongatum, terminalem dispositæ. Flores majores quàm in *C. dichotoma*. Calyces densè tomentosi, glanduloso-punctati, dentibus demùm patulis.

Hab. Taong Dong.

XXVI. CRANIOTOME, *Reichenb. Icon. Exot.* 1. p. 39.

Calyx ovatus, post anthesin subglobosus, sub-10-nervius, æqualis, 5-dentatus, fauce coarctatâ, intùs villosâ. Corolla tubo exserto, bilabiata, labio superiore brevissimo, erecto, integro, inferiore longiore, patente, trifido. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis demùm divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

1. *C. versicolor* (Reichenb. l. c. t. 54); *Anisomeles nepalensis* (Spreng. Syst. 2. p. 706); *Ajuga furcata* (Link. Enum. 2. p. 99).

Caulis herbaceus, erectus, ramosus, patentim pilosus. Folia petiolata, ovata, acuminata, crenata, basi cordata, utrinque piloso-hispida, floralia inferiora caulinis conformia, superiora minorâ, suprema minuta, bracteæformia. Cymæ laxæ, pedunculatæ, racemosæ; racemis gracilibus, paniculatis. Flores minuti, numerosi. Bracteæ minutæ. Calyces glabriusculi, dentibus conniventibus. Corollæ tubus albus, faux et limbus purpurei.

Hab. Napalia et Kamaon.

XXVII. NEPETA, *Linn. Gen.*

Calyx tubulosus, basi subgibbus, 15-nervius, æqualis vel ore obliquus, 5-dentatus, intùs fauce nudâ vel subvillosâ. Corolla tubo subexserto, fauce inflatâ, bilabiatâ, labiis subæqualibus, superiore erecto, emarginato, fornicato vel subplano, inferiore patente, trifido, lobo medio dilatato, sæpiùs concavo. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, minutè rugoso-punctata, rariùs lævia.—Herbæ verticillastris sæpiùs multifloris, laxè racemosis, rariùs densè spicatis.

The above character will include the *Glechoma hederacea*, which I do not think can be generically distinguished from *Nepeta*. The anthers are more or less "per paria cruciatim approximatæ" in most of the species, especially before they have burst. The chief character which distinguishes *Nepeta* from *Dracocephalum* is in the calyx, which in the former is regular or oblique at the mouth, but not bilabiate as in the latter genus. The flowers of *Dracocephalum* are also in general larger and less numerous, with the orifice of the tube more inflated.

1. *N. spicata* (Benth. in Wall. Cat. Herb. Ind. n. 2083); caulibus adscendentibus, subsimplicibus, tetragonis, angulis ciliatis; foliis petiolatis, ovato-lanceolatis, crenatis, basi truncato-subcordatis, suprà glabris, subtùs parcè pubescentibus; verticillastris densè spicatis, spicis solitariis, terminalibus, teretibus; foliis floralibus sessilibus, bracteæformibus, ovatis, acutissimis, serratis, bracteisque lineari-subulatis, calycem æquantibus; calycibus vix pubescentibus, ore subæquali, dentibus longè subulatis; corollis incurvis, calycem duplò superantibus; acheniis lævissimis.—*Betonica lævigata*, Don. Prodr. Fl. Nepal. p. 110?

Hab. Bhuddrinath.

2. *N. ciliaris* (Benth. in Wall. Cat. Herb. Ind. n. 2082); caule erecto, ramoso, cano-pubescente vel basi hirsuto; foliis petiolatis, lato-ovatis, crenatis, basi cordatis, utrinque præsertìm paginâ inferiore canescentibus, floralibus minoribus, supremis sessilibus, integerrimis, ovatis, acutis; verticillastris multifloris, secundis, supremis spicatis; bracteis ovato-lanceolatis, calycem æquantibus, acutis, ciliatis; calycibus elongatis, villosis, fauce intùs subvillosâ, ore obliquo, dentibus setaceis, basi dilatatis; corollæ tubo calycem brevitèr superante, acheniis minutè punctato-rugosis.

β? verticillastris inferioribus remotis, brevitèr pedunculatis.

Hab. α Choor, Royle; β in horto Liverpoolensi orta ex seminibus e Napalia a Wallichio missis. An hujus vel sequentis varietas?

3. *N. ruderalis* (Hamilt. MSS.); caule basi diffuso, piloso; ramis adscendentibus erectisve, pubescentibus; foliis petiolatis, ovato-rotundatis, serratis, basi subcordatis vel attenuatis, glabris vel cano-pubescentibus; floralibus minoribus, supremis linearibus, integerrimis; verticillastris 10—15-floris, secundis, inferioribus pedunculatis, folia nunc superantibus, supremis sessilibus, remotè spicatis; bracteis setaceis, calycem æquantibus, ciliatis; pedicellis brevissimis; calycibus ovatis, submembranaceis, pubescentibus, fauce intùs subvillosâ, ore obliquè setaceo-dentato; corollæ tubo calycem vix superante; acheniis minutè punctato-rugosis.—*N. secunda*, Benth. in Wall. Cat. Herb. Ind. n. 2122. *Glechoma erecta*, Roxb. Hort. Beng. p. 43. *Glechoma hindostana*, Roth. Nov. Pl. Sp. p. 258. *Glechoma indicum*, Spreng. Syst. 2. p. 727.

β *incana*; foliis minoribus, rugosis, utrinque cano-tomentosis.

Hab. Napalia, Hurdwar, Rajemahl; β Napalia.

4. *N. graciliflora* (Benth. in Wall. Cat. Herb. Ind. n. 2123); caule basi diffuso; ramis adscendentibus, brevissimè cano-pubescentibus; foliis petiolatis, ovato-rotundatis, basi subcordatis, inciso-serratis vel profundè crenatis, glabriusculis, floralibus inferioribus conformibus, supremis bracteæformibus, setaceis; paniculâ elongatâ, diffusâ; pedunculis gracilibus, elongatis, dichotomis, secundis; bracteis setaceis; floribus pedicellatis; calycibus elongatis, glabris, fauce intùs subvillosâ, ore obliquè setaceo-dentato; corollâ calycem subduplò superante; acheniis minutè punctato-rugosis.

Hab. Hurdwar.

XXVIII. COLQUHOUNIA, *Wall. in Linn. Trans. v.* 13. *p.* 608.

Calyx campanulatus, 10-nervius, subæqualis, 5-dentatus, intùs fauce nudâ. Corolla tubo exserto, incurvo, fauce inflatâ, bilabiata; labiis subæqualibus, superiore erecto, integro, subfornicato, inferiore patente, trifido, lobo medio integro. Stamina 4, sub labio superiore adscendentia. Antheræ biloculares, loculis divaricatis. Stylus apice subæqualitèr bifidus. Achenia sicca, supernè alata.

1. *C. coccinea* (Wall. loc. cit. et Tent. Fl. Nap. vol. i. p. 13. t. 6); ramis petiolisque floccoso-tomentosis, demùm subnudis; foliis oblongo-ellipticis, utrinque attenuatis, rugosis, glabris vel ad nervos floccoso-tomentosis; verticillastris 6—10-floris, racemosis; racemis axillaribus, terminalibus; foliis floralibus inferioribus caulinis conformibus, supremis sessilibus, ovatis, calyce brevioribus, deciduis; bracteis minutis, setaceis; calycibus pulverulentis.

β *parviflora*, tomento vix floccoso.

Hab. Gossain Than; β Napalia.

2. *C. vestita* (Wall. Tent. Fl. Nap. vol. i. p. 14); ramis, petiolis, foliorum paginâ inferiore, calycibusque lanâ candidâ, floccosâ densè tomentosis; foliis petiolatis, ovatis, basi subtruncatis, rugosis, suprà glabriusculis; verticillastris 6—10-floris, laxè racemosis; racemis axillaribus terminalibusve; foliis floralibus ovatis, sessilibus, calycem vix superantibus; bracteis minutis, setaceis.

Hab. Kamaon.

3. *C. elegans* (Wall. Cat. Herb. Ind. n. 2084); ramis brevitèr rufo-tomentosis; foliis petiolatis, ovatis, basi subattenuatis, rugosis, suprà pubescentibus, subtùs densè velutino-tomentosis, floralibus supremis sessilibus, ovatis, acutis, calycem vix superantibus; verticillastris laxè multifloris, racemosis; racemis oblongis, axillaribus, terminalibusve; bracteis oblongo-linearibus, calyce tomentoso duplò brevioribus.

Hab. Taong Dong, mons Avæ.

XXIX. HOLMSKIOLDIA, *Retz. Obs.* 6. *p.* 31.

Calyx amplus, campanulatus, membranaceus, venosus, margine subintegerrimo. Corolla tubo exserto, fauce vix inflatâ, bilabiata, labio superiore abbreviato, erecto, integro, inferiore subpatente, trifido, lobis lateralibus brevissimis, medio longiore, integro. Stamina 4, adscendentia, exserta. Antheræ biloculares, loculis parallelis. Stylus apice subinteger. Achenia sicca? rugosa.

1. *H. sanguinea* (Retz. loc. cit.); *Hastingia coccinea* (Sm. Exot. Bot. 2. t. 80); *Platunium rubrum* (Juss. Ann. Mus. 7. p. 76.) Frutex; ramis quadrangulis glabris, sæpiùs tuberculatis. Folia petiolata, ovata, acuminata, vix dentata, basi subtruncata, glabra. Verticillastri 2—4-flori, in racemos axillares, petiolo vix longiores dispositi. Folia floralia nunc caulinis conformia, nunc sessilia ovata, vel omninò abortiva. Pedicelli calycem amplè campanulatum, sanguineo-rubrum, membranaceum, venosum subæquantes. Corolla brevitèr exserta.

Hab. Hindustania.

§ 2. Calyx bilabiatus. Antheræ biloculares vel connectivo brevi dimidiatæ.

XXX. DRACOCEPHALUM, *Linn. Gen.* 729.

Calyx tubulosus, 15-nervius, bilabiatus; labio superiore tridentato, dentibus ovatis, medio sæpiùs latiore, inferiore bidentato, dentibus linearibus; intùs fauce nudâ. Corolla tubo nunc exserto, nunc calyce breviore, fauce inflatâ, bilabiata, labio superiore erecto, emarginato, fornicato, inferiore patente, trifido, lobo medio emarginato, subplano. Stamina 4, sub labio superiore adscendentia, approximata. Antheræ biloculares, loculis divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca, lævia.

1. *D. speciosum* (Wall. Cat. Herb. Ind. n. 2128); radicibus crassis, fasciculatis; caule erecto, simplici, pubescente; foliis rugosis, pubescentibus, profundè crenatis, radicalibus caulinisque inferioribus longè petiolatis, ovato-rotundatis, basi profundè cordatis, superioribus floralibusque sessilibus, lato-ovatis, supremis calyce brevioribus; verticillastris paucis, multifloris, densè capitato-spicatis, vel inferiore remotiusculo; bracteis ovato-rotundatis, apice inciso-dentatis, calyce dimidiò brevioribus; calycis ampli, incurvi, subfoliacei lobo supremo lato-ovato, inferioribus angustioribus, acutis; corollâ villosissimâ, calyce duplò longiore, tubo amplo, incurvo.

Affine *D. altaico*, a quo differt præcipuè foliis radicalibus latioribus, bracteis minoribus, corollis villosis, incurvis, minoribus. Flores cærulei teste Wallichio.

Hab. Gossain Than.

2. *D. Govanianum* (Wall. l. c. n. 2127); caule erecto, ramoso, pubescente; foliis petiolatis, elliptico-oblongis, vel oblongo-lanceolatis, utrinque attenuatis, rugosis, crenatis, parcè pubescentibus, floralibus multò minoribus, supremis minutis; floribus laxè racemoso-paniculatis; verticillastris inferioribus cymiformibus, longè pedunculatis, supremis subsessilibus, paucifloris; bracteis linearibus, minutis; calycibus brevitèr pedicellatis, tubulosis, striatis, irregularitèr bilabiatis, lobis acutis, superioribus ovatis, inferioribus linearibus; corollâ calyce sub-4plò longiore, tubo gracili, faucâ valdè inflatâ.

Affine *D. sibirico*, a quo differt pubescentiâ, foliorum formâ, floribus minoribus, verticillastris laxioribus, longiùs pedicellatis, &c.

Hab. Sirmore et Kamaon.

3. *D. Royleanum* (Wall. l. c. n. 2129); caule erecto, stricto, parcè ramoso, supernè villoso; foliis ovatis, profundè crenatis, basi attenuatis, inferioribus petiolatis, supremis subsessilibus, floralibus conformibus; verticillastris paucifloris, remotè spicatis, foliis brevioribus; bracteis petiolatis, oblongis, ciliato-dentatis, calycem subæquantibus, pedicellis post anthesin dilatatis, rigidis, cauli adpressis; calycibus tubulosis, striatis, ore bilabiato, post anthesin clauso, dentibus involutis; corollis calycem vix superantibus.

Habitus *D. thymifloro*, sed characteribus datis distinctissimum.

Hab. . . . In horto Saharunpurensi cultum.

XXXI. MELISSA, *Linn. Gen.* 728.

Calyx 5- vel sub-13-nervius, campanulatus, bilabiatus, labiis patentibus, superiore subplano, tridentato vel trimucronato, inferiore bifido, fauce intùs nudâ vel vix pilosâ. Corolla tubo nunc calycem subæquante, nunc exserto, fauce subinflatâ, bilabiata, labio superiore erecto, emarginato, subplano vel rariùs fornicato, inferiore patente, trifido, lobo medio subplano. Stamina 4, sub labio superiore adscendentia, superiora nunc sterilia vel abortiva. Antheræ biloculares, loculis demùm divaricatis. Stylus apice subæqualitèr bifidus. Stigmata minuta.

§ 1. Stamina omnia fertilia; achenia lævia.

1. *M. flava* (Wall. Cat. Herb. Ind. n. 2126); caule erecto, ramoso, subglabro; foliis petiolatis, ovatis, acuminatis, crenatis, subtùs nervosis, vix rugosis, glabriusculis, floralibus conformibus; verticillastris laxis, secundis, remotis, racemosis; bracteis parvis, oblongis; pedicellis pubescentibus; calycibus ciliatis; corollis amplis, calycem duplò triplòve superantibus.

Calyces et folia superiora sæpè purpurascentia. Flores flavi, fragrantes.

Hab. Napalia.

2. *M. parviflora* (Benth. in Wall. l. c. n. 2125); caule erecto, ramoso, glabro; foliis brevitèr petiolatis, ovatis, acutis, crenatis, subtùs nervosis, vix rugosis, glabris, floralibus conformibus; verticillastris laxis, secundis, sæpiùs paucifloris, remotè racemosis; bracteis parvis, oblongis; calycibus glabris vel ad angulos ciliatis; corollis vix calycem æquantibus.

Affinis præcedenti, a qua differt præcipuè calycibus minoribus, corollis minutis.

Hab. Napalia.

§ 2. Stamina superiora sterilia; achenia reticulato-rugosa.

3. *M. Nepalensis* (Benth. l. c. n. 2124); caule erecto, ramoso, paniculato, glabro, tetragono, angulis asperis; foliis petiolatis, ovato-oblongis, serratis, utrinque attenuatis; floralibus minutis; floribus solitariis, oppositis, brevitèr pedicellatis, secundis, ad apice caulis et ramorum laxè racemosis; calycibus subglobosis, glabris vel parcè pubescentibus.—*Cunila Nepalensis*, Don. Prod. Fl. Nepal. p. 107. *Lycopus dianthera*, Roxb. Fl. Ind. 1. p. 145. *Mosla ocymoides*, Herb. Hamilt.

Habitus ferè *Moschosmæ ocymoidis*. Folia parva, distantia. Racemi numerosi. Flores minuti, dilutè cærulei. An genus proprium?

Hab. Napalia, Goalpara.

XXXII. Clinopodium, *Linn. Gen.* 725.

Calyx 13-nervius, tubulosus, basi subæqualis, sæpiùs incurvus, bilabiatus, labio superiore tridentato, inferiore bifido, intùs fauce subnudâ. Corolla tubo sæpiùs exserto, bilabiata, labio superiore erecto, emarginato, subplano, inferiore patente, trifido, lobo medio emarginato. Stamina 4, sub labio superiore adscendentia, superiora nunc sterilia. Antheræ biloculares, loculis distinctis, connectivo crasso sæpiùs adnatis, subparallelis, divergentibus vel demùm divaricatis. Styli lobus inferior recurvus, complanatus, superiorem breviorem, nunc brevissimum basi involvens. Stigma inferius marginale, superius minutum, terminale vel marginale. Achenia sicca, lævia.—Herbæ. Verticillastri confertè multiflori.

1. *C. repens* (Roxb. Hort. Beng. p. 44.); caulibus diffusis, basi radicantibus, ramis adscendentibus, pubescenti-villosis; foliis brevitèr petiolatis, ovatis, serratis, nervosis, pubescentibus, floralibus conformibus; verticillastris æqualibus, laxiusculis, multifloris, remotis vel supremis approximatis, subspicatis; bracteis lineari-subulatis, calycibusque ciliatis; corollis brevitèr exsertis; staminibus superioribus sæpiùs sterilibus; antherarum loculis distinctis, divaricatis, connectivo crasso adnatis; styli lobo superiore brevissimo.—*Thymus repens*, Don. Prodr. Pl. Nepal. p. 113.

Corolla dilutè purpurea.

α verticillastris omnibus remotis, bracteis hispidis, calycem æquantibus.

β verticillastris supremis sæpiùs approximatis, spicatis, calycibus glabrioribus, bracteis calyce brevioribus.

Hab. α Napalia; β Napalia et Kamaon.

2. *C. longicaule* (Benth. in Wall. Cat. Herb. Ind. n. 2131); caulibus adscendentibus, ramis elongatis, pubescenti-villosis; foliis petiolatis, ovatis, basi attenuatis, parcè crenatis, obtusis, glabris vel parcè villosis, glanduloso-punctatis, floralibus conformibus, supremis calyce brevioribus; verticillastris laxè paucifloris, secundis, racemosis; bracteis minutis; calycibus elongatis, incurvis, corollâ dimidiò brevioribus; staminibus superioribus sæpiùs sterilibus, antherarum loculis parallelis, distinctis, connectivo vix incrassato; styli lobo superiore inferiore vix breviore.—*Thymus origanifolius*, Don. Prodr. Fl. Nepal. p. 113?

"Omnes partes herbæ valdè aromaticæ. Corolla violacea." Wall. MSS.

Hab. Napalia.

XXXIII. Prunella, *Linn. Gen.* 735.

Calyx ovatus, bilabiatus, labio superiore subplano, tridentato vel trimucronato, inferiore bifido; intùs fauce nudâ? Corolla tubo exserto, bilabiata, labio superiori erecto, integro, fornicato, inferiore patente, trifido. Stamina 4, sub labio superiore adscendentia. Filamenta apice bidentata, dente superiore nudo, inferiore antherifero. Antheræ biloculares, loculis divergentibus. Stylus apice subæqualitèr bifidus. Stigmata minuta. Achenia sicca.

1. *P. vulgaris* (Linn. Spec. 837); caulibus basi radicantibus, stoloniferis, fructiferis adscendentibus vel erectis, basi glabris, supernè hispidis; foliis petiolatis, ovato-oblongis, integris, margine subintegerrimis vel grossè dentatis, glabris vel hispidulis, superioribus sessilibus, angustioribus; spicis oblongo-cylindricis; foliis floralibus membranaceis, rotundatis, mucronatis, ciliatis; calycis labio superiore truncato, brevissimè mucronato-tridentato; corollâ calycem duplò superante, labio superiore erecto, elongato, lobis labii inferioris oblongis.—*Prunella pensylvanica*, Willd. Hort. Berol. 1. p. 9. t. 9. *P. laciniata*, Walt.

Hab. Napalia et Kamaon.

The specimens I have seen from Nepal, from Europe, and from North America, do not appear to differ at all from one another, excepting as to such variations as they are liable to in each of those countries. On the other hand, I should consider the *P. parviflora*, Poir. Itin. 2. p. 188, which I have often gathered in the South of France, as a distinct species, and not a mere variety of *P. vulgaris*, as it has generally been considered.

2. *P. hispida*; caule adscendente, hirsuto; foliis petiolatis, ovatis, obtusis, subintegerrimis vel vix crenatis, piloso-hispidis; spicis densis, ovato-capitatis; foliis floralibus rotundatis, ciliatis; calycis labio superiore tridentato; corollis calyce dimidiò longioribus, labio superiore lobisque labii inferioris latis, rotundatis.—*P. ovata*, Benth. in Wall. loc. cit. n. 2133. non Pers.

Hab. in montibus Nilghiri dictis.

XXXIV. Scutellaria. *Linn. Gen.* 734.

Calyx ovato-campanulatus, suprà in squamam concavam, dorsalem, appendiciformem productus: ore bilabiatus, labiis integris, post anthesin clausis. Corolla tubo longè exserto, bilabiata, labio superiore erecto, fornicato, incumbente, inferiore sæpiùs breviore, suberecto, trifido. Stamina 4, sub labio superiore adscendentia. Antheræ ciliatæ, staminum superiorum dimidiatæ, inferiorum cordatæ, biloculares, loculis divaricatis. Styli lobus superior brevissimus. Stigmata minuta. Ovarium gynophoro incurvo elevatum. Achenia sicca, lævia, nuda.—Herbæ. Flores in axillis foliorum floralium solitarii, sæpiùs oppositi, brevitèr pedicellati, in racemis terminalibus vel axillaribus dispositi. Calyx maturatione dehiscens, labio superiore cum appendice deciduo, inferiore persistente.

1. *S. linearis* (Benth. in Wall. Cat. Herb. Ind. n. 2137); caule suffruticoso, basi ramoso, ramis adscendentibus, villosis; foliis linearibus, obtusis, utrinque attenuatis, integerrimis, margine revolutis, subtùs canescentibus, eglandulosis, floralibus ovato-rotundatis, integerrimis, villosis; pedicellis oppositis; calycibus villosis, corollis subrectis, apice inflatis, labiis profundè fissis.

Corolla et habitus *S. alpinæ*, foliorum formâ diversissima.

Hab. Kamaon.

2. *S. rivularis* (Wall. loc. cit. n. 2140), herbacea, glaberrima; caulibus erectiusculis, simplicibus vel parcè ramosis; foliis oblongo-lanceolatis, obtusis, remotè serratis, basi sæpiùs hastatis, nunc attenuatis, eglandulosis, racemis solitariis, terminalibus vel rariùs paniculatis; foliis floralibus oblongis, integris, calycem superantibus; pedicellis brevibus, oppositis; corollis subrectis, apice subinflatis, labio inferiore superiorem subæquante.—*S. barbata*, Don. Prodr. Fl. Nepal. p. 109? *S. peregrina*, Roxb. Hort. Beng. p. 47. non Linn.

Affinis *S. galericulatæ*, sed glaberrima, flores ferè duplò minores, folia floralia multò minora.

Hab. Napalia.

3. *S. discolor* (Wall. MSS.); caule herbaceo, subsimplici, basi radicante, folioso, supernè erecto, subnudo, pubescenti-villoso; foliis ad basin caulis approximatis, longè petiolatis, ovatis, obtusissimis, crenatis, basi cordatis, rugosis, utrinque pubescentibus vel villosis, racemis minutè glanduloso-punctatis, elongatis, solitariis, simplicibus vel basi ramosis; foliis floralibus minutis, pedicellis sparsis, rarò oppositis; corollis rectiusculis, tubo gracili, labio inferiore abbreviato.

Caulis basi subterraneus, repens, radicans. Folia ferè omnia ad basin caulis approximata, subtùs sæpiùs violacea. Racemus 4—6-pollicaris, basi sæpiùs ramos duos, oppositos gerens. Calyx minutus. Corolla gracilis, 6—7-lineas longa, pubescens. Folia floralia pedicello duplò breviora. Species pedicellis sparsis, nunc alternis, nunc glomeratis, rarissimè oppositis, distinctissima. *S. indica*, Don. Prodr. Fl. Nep. p. 109, non Linn.

β *elatior*; caulibus magis foliosis, subramosis.

Hab. α Napalia, Sillet; β Sillet.

The *S. indica* of Linnæus, from the specimens in his herbarium, is a very different plant, nearer related to the *S. cana*.

4. *S. violacea* (Heyne ex Wall. loc. cit. n. 2136); caule herbaceo, erecto, subsimplici, folioso, pubescente; foliis longè petiolatis, ovatis,

acuminatis vel obtusiusculis, crenatis, basi attenuatis vel subcordatis, glabris vel hispidulis, eglandulosis, racemis elongatis, simplicibus vel basi ramosis; pedicellis oppositis, folia floralia ovata subduplò superantibus; corollis rectiusculis, labio inferiore dilatato, superiore breviore.

β glabrior, foliis basi sæpiùs attenuatis.

γ, foliis acutè dentatis; *S. indica*, Roxb. Hort. Beng. p. 44. non Linn.

Statura præcedentis, sed caulis ramosus, usque ad basin racemorum foliosus. Corolla *S. discoloris*, sed vix pubescens, calyce paullò majore, pedicellis longioribus, constantèr oppositis.

Hab. α .... (Herb. Heyne); β in Ceylona (Herb. Finl.), et in Java (Herb. Hook.); γ .... (Herb. Roxb.).

5. *S. Wightiana;* caule basi procumbente, adscendente, subramoso, pubescente; foliis petiolatis, ovatis, acutis, crenatis, basi cordatis, suprà hispidis, subtùs ad nervos pubescentibus; racemis simplicibus; pedicellis oppositis, folia floralia ovata, subdentata vix æquantibus; corollis basi gibbosis, apice subincurvis, labio inferiore superiorem subæquante.

β *microphylla.*

Præcedenti valdè affinis, sed magìs hispida, folia floralia majora, inferiora caulinis subconformia, calyces majores, sæpiùs hispidi, corolla basi gibbosior, apice subincurva.

Hab. α in montibus Nilghiri dictis; β .... Herb. Wight.

6. *S. Colebrookeana* (Wall. l. c. n. 2135); caule herbaceo, basi repente, radicante, ramis erectis, subramosis, brevissimè pubescentibus; foliis longè petiolatis, lato-ovatis, grossè dentatis, basi rotundatis, glabriusculis, densissimè glanduloso-punctatis; racemis simplicibus; pedicellis oppositis, folia floralia duplò superantibus; corollis rectiusculis, labio inferiore superiorem subæquante.

Folia minora quàm in præcedentibus, latitudine longitudinem æquantia, glandulis densè obsita.

Hab. .... Herb. Heyne.

7. *S. cana* (Wall. l. c. n. 2141); caule procumbente, ramosissimo, ramis adscendentibus, pubescentibus; foliis petiolatis, ovatis, crenatis, basi rotundatis, utrinque, præsertim paginâ inferiore, mollitèr pubescentibus, densè glanduloso-punctatis; racemis paniculatis, viscosis; foliis floralibus ovatis, dentatis vel supremis integerrimis, pedicellum superantibus; floribus oppositis, secundis; corollis subrectis.

Corolla 5—6 lineas longa, pallidè flava, labio superiore dilutè violaceo.

β *diffusa*, minùs tomentosa.

Hab. α Taong Dong mons Avæ, et Kámaon; β Napalia.

8. *S. angulosa* (Benth. in Wall. l. c. 2139); caule adscendente, ramoso, glaberrimo, angulato, ramis junioribus pubescentibus; foliis petiolatis, ovato-lanceolatis, acuminatis, serratis, basi rotundatis vel subcordatis, junioribus hispidis, demùm glabratis, minutissimè sub lente glanduloso-punctatis, floralibus lanceolatis, pedicellos superantibus, supremis ovato-rotundatis; racemis pubescentibus, subpaniculatis; floribus oppositis, secundis; corollis apice inflatis, subincurvis, labio inferiore breviore.

Anguli præsertìm caulium vetustiorum acutissimi. Corolla villosa, 9—10 lineas longa.

Hab. Napalia, Kamaon, et Srinaghur.

9. *S. grossa* (Wall. l. c. n. 2142); caule basi repente, radicante; ramis adscendentibus, villosis; foliis petiolatis, ovatis, crenatis, basi rotundatis vel subcordatis, glabris vel hispidulis, eglandulosis; floralibus ovato-lanceolatis, calycem hispidum superantibus; pedicellis oppositis, brevissimis; corollis calyce 8—9-plòve longioribus, tubo basi inflato, apice recto, vix inflato; labiis brevibus, superiore longiore.

Folia ferè *S. Wightianæ.* Corolla pubescens, gracilis, 9—10-linearis.

Hab. Kamaon.

10. *S. incurva* (Wall. l. c. n. 2138); caule adscendente, ramoso, pubescente; foliis subsessilibus, oblongo-ellipticis, acutis, remotè serratis, glabriusculis, floralibus minutis; racemis terminalibus, simplicibus, floribus oppositis, secundis; pedicellis calyce triplò longioribus; corollarum tubo gracili, incurvo, labiis profundè fissis, superiore amplo cucullato, inferiore breviore.

Species distinctissima, sed specimen unicum in herbario Wallichiano imperfectum.

Hab. Taong Dong.

§ 3. Calyx bilabiatus. Antheræ dimidiatæ, connectivo elongato, filiformi.

XXXV. SALVIA. *Linn. Gen.* 39.

Calyx bilabiatus, labio superiore integro vel tridentato, inferiore bifido. Corolla bilabiata, labio superiore erecto, fornicato, falcato vel rariùs recto, inferiore patente, trifido. Stamina fertilia 2, sub labio superiore adscendentia. Filamenta brevissima, tubo inclusa. Antheræ dimidiatæ, connectivo elongato, filiformi, incurvo, posticè sæpiùs clavato, rariùs antheræ loculum alterum gerente. Stylus apice bifidus, lobo superiore sæpiùs breviore. Stigmata minuta. Achenia sicca.

This very numerous genus might be conveniently divided into sections; but as so very few of the species are Indian, I have thought that operation, which would require a general study of the whole genus, unnecessary on the present occasion.

1. *S. plebeia* (Br. Prodr. p. 501?); caule erecto, ramoso; foliis petiolatis, oblongis lanceolatisve, utrinque attenuatis, crenatis, nervosis, rugosis, tenuissimè pubescentibus; verticillastris sub-6-floris, laxè racemosis; racemis ramosis, paniculatis; foliis floralibus supremis bracteisque minutis, ovatis, reflexis, pedicello brevioribus; pedicellis calycem æquantibus; calycibus villosis, post anthesin nutantibus, labio superiore integerrimo; corollis calyce vix longioribus. *S. brachiata*, Roxb. Hort. Beng. p. 4. Fl. Ind. 1. p. 146. *S. parviflora*, Roxb. Hort. Beng. p. 4? *Ocymum fastigiatum*, Roth. Nov. Pl. Spec. p. 277.

Habitu ad *Moschosmas* accedit. Flores minuti, numerosissimi.

Hab. Napalia, Oude, Hindustania, Sillet.

2. *S. lanata* (Roxb. Fl. Ind. 1. p. 147?); caulibus e basi crasso lignoso pluribus, erectis, basi densè albido-lanatis, foliosis, ramosis, supernè subnudis, patentim piloso-villosis; foliis brevitèr petiolatis, oblongo-ellipticis, basi attenuatis, obtusiusculis, integerrimis vel sinuato-dentatis, suprà tuberculato-rugosis, sublanatis, subtùs lanâ candidâ, densissimâ vestitis; petiolis dilatatis, connato-amplexicaulibus, lanatis; racemis vix ramosis, viscoso-villosis; verticillastris remotis, sub-6-floris; foliis floralibus bracteæformibus, rotundatis, mucronatis, striatis, villosis, calyce subbrevioribus; floribus subsessilibus, erectis; calycibus striatis, villosis, labio superiore trimucronato, inferiore acutè bidentato; corollis calyce duplò longioribus, tubo brevitèr exserto, labio superiore arcuato, fornicato; stylo exserto.—*S. cana*, Wall. Cat. Herb. Ind. n. 2145. *S. integrifolia*, Hardw. Asiat. Res. 6. p. 349? *Stenarrhena lanata*, Don. Prod. Fl. Nepal. p. 111.

Corolla azurea, magnitudine *S. pratensis.*

Hab. Kamaon, Sirmore, et vallis Deyra dicta.

3. *S. Moorcroftiana* (Wall. loc. cit. n. 2144); caule erecto, basi densè albido-lanato, folioso, supernè villoso, subnudo, ramoso; foliis longè petiolatis, amplis, ovatis, obtusis, eroso-crenatis, basi subattenuatis vel rotundatis, suprà tuberculato-rugosis, sublanatis, subtùs lanâ candidâ, densissimâ vestitis; racemis paniculatis, viscoso-villosis; verticillastris remotis, sub-6-floris; foliis floralibus bracteæformibus, rotundatis, mucronatis, membranaceis, venosis, ciliatis, calyces subæquantibus; floribus brevitèr pedicellatis, erectiusculis; calycibus striatis, glandulosis, ciliatis, labio superiore tridentato, inferiore bidentato, dentibus omnibus setaceo-mucronatis; corollis calyce triplò longioribus, tubo longè exserto, labio superiore elongato, vix arcuato; genitalibus exsertis.

Species pulcherrima, affinis *S. lanatæ*, a qua differt foliorum formâ, racemis paniculatis, corollâ longiore, tubo calyce duplò longiore, et aliis notis.

Hab. Luddak, Moorcroft.

4. *S. campanulata* (Wall. loc. cit. n. 2143), herbacea; caule adscendente, hirsuto; foliis longè petiolatis, amplis, ovatis, cordatis, inciso-crenatis, crenulis dentatis, utrinque hispidulis; racemis axillaribus terminalibusque, vix ramosis; verticillastris sub-6-floris,

remotis; foliis floralibus bracteisque lanceolatis, acutis, calyce fructifero brevioribus; floribus brevitèr pedicellatis, patentibus; calycibus amplis, campanulatis, hispidis, minutè glandulosis, labio superiore brevissimè tridentato, inferiore bifido; corollis . . . .

Hab. Gossain Than.

Corollæ in speciminibus desunt, sed teste Wallichio, *S. nubicolæ* similes.

5. *S. nubicola* (Wall. loc. cit. n. 2146), herbacea; caule erecto, ramoso, pubescenti-villoso; foliis longè petiolatis, hastato-cordatis, crenatis, utrinque pubescentibus; racemis paniculatis; verticillastris remotis, sub-6-floris; foliis floralibus bracteisque oblongis, calyce fructifero brevioribus; calycibus brevitèr pedicellatis, amplis, campanulatis, villosis, labio superiore brevissimè tridentato, inferiore bifido; corollis calyce subtriplò longioribus, tubo exserto, labio superiore arcuato; genitalibus longe exsertis. *S. nubicola*, Sweet, Fl. Gard. v. 2. t. 140.

Hab. Kamaon et Srinaghur.

Corolla flava, purpureo-punctata.

6. *S. coccinea* (Linn. Mant. p. 88); caule erecto, ramoso, canescenti-villoso; foliis petiolatis, cordatis, acutis, crenatis, suprà pubescentibus, subtùs mollitèr tomentosis; racemis terminalibus, basi subramosis; verticillastris 6-floris, remotis; foliis floralibus bracteisque minutis; calycibus brevitèr pedicellatis, demùm nutantibus, labio superiore integro, acuto, inferiore bifido; corollis calyce triplò longioribus, labio superiore abbreviato, erecto, inferiore longiore, lobo medio maximo, obcordato; genitalibus exsertis.—*S. rosea*, Vahl. Enum. 1. p. 244.

Hab. Secus ripas Gangis, ad Patna, ex America Mexicana advena.

7. *S. saxicola* (Wall. loc. cit. n. 2147); caulibus cæspitosis, subnudis; foliis radicalibus longè petiolatis, rotundatis, crenatis, basi cordatis, glabriusculis, caulinis raris, oblongo-lanceolatis, sinuato-dentatis; racemis elongatis, subsimplicibus; verticillastris 6—10-floris, infimis remotis, supremis approximatis; foliis floralibus bracteisque minutis, lanceolatis; calycibus pubescentibus, brevitèr pedicellatis, demùm nutantibus, labio superiore integro, mucronato, inferiore bifido; corolla tubo incluso, labiis vix calycem superantibus.

Hab. Napalia.

8. *S. ocymoides* (Roxb. MSS. ex Herb. Madr.); caule erecto, subnudo, parcè piloso; foliis radicalibus petiolatis, obovatis, obtusissimis, vix crenatis, basi attenuatis, hispidulis, caulinis raris, oblongo-linearibus; racemis subsimplicibus; verticillastris sub-6-floris, infimis remotis, supremis approximatis; foliis floralibus bracteisque calyce brevioribus; calycibus patentìm pilosis, brevitèr pedicellatis, demùm nutantibus, labio superiore tridentato, inferiore bidentato, dentibus mucronatis; corollæ tubo incluso, labiis vix calycem superantibus.

Hab. . . . . Herb. Madr.*

HOYA FUSCA. Tab. 75.

Radicans, ramosissima; foliis oblongis, acuminatis; corollâ lævissimâ, coronæ foliolis subtùs sulco exaratis.

Habitat super rupibus arborumque truncis montium valli Napaliæ vicinarum; etiam in Napalia inferiore secus ripas fluminis Rapti. Floret Augusto; fructus profert Octobri.

Planta fruticosa, magna, latissimè radicans, ramosissima, omninò lævis, omnibus partibus copiosè lactescens. Rami longi, cylindrici, pennam cygneam, usque ad digitum modicum crassi, plùs minùsve penduli, epidermide cinereâ, pallidâ obtecti, ad foliorum insertionem parùm tumidi, et vestigio annulari ciliarum notati. Folia approximata, opposita, patentissima, valdè crassa et coriacea, firma, plana, oblonga, acumine angusto, semipollicari terminata, marginibus parallelis convexis, basi obtusa, suprà atroviridia, lucida, ad insertionem petioli utrinque corpusculo cinereo, emarcido (loco acervuli soliti ciliarum), subtùs pallida, subargentea, costâ valdè elevatâ, nervis transversis, capillaceis, intra marginem arcuatim anastomosantibus; 6—7-pollicaria. Petioli crassi, convexi, suprà parùm sulcati, semipollicares. Flores magni, fusci, nitidi, inodori, valdè numerosi, densissimè dispositi in *umbellam* hemisphæricam, lateralem, extra-axillarem, diametrum 3-pollicarem emetientem, erectam, pedunculatam, vix ad tertiam inferiorem folii partem elevatam, subinvolucratam. Pedunculus *communis* crassus, cylindricus, petiolo dimidiò longior; *partiales* teretes, pollicares, subclavati, exteriores ad basin muniti *bracteolâ* oblongâ, obtusâ, ciliatâ. Calyx quinquefidus, parvus; *laciniæ* ovatæ, obtusæ, ciliatæ, basi extùs gibbosæ. Corolla rotata, plana, patentissima, demùm reflexa; *laciniæ* lanceolatæ, subacuminatæ, marginibus subrevolutæ, subtùs concaviusculæ. Columna pentagona, truncata, pallidè fusca, 5-loba; lobi depressi, subtùs profundè sulcati, suprà concaviusculi, angulo interiore producto in dentem subulatum, longum, *antheræ* ovatæ, obtusæ, membranulâ cinctæ oppositum. Massæ pollinis luteæ, tenues, longiusculæ, lineari-clavatæ, erecto-divergentes, basi acutâ apici *corpusculi* minuti, sulcati, fusci insertæ. Stigma 5-angulare, vertice in umbilicum obtusum productum, antheris occultum. Folliculus sæpiùs solitarius, cylindricus, lævis, 4-pollicaris; maturus haud observatus.

Plate LXXV. Fig. 1. 2. 3. Flower viewed in different directions. 4. 5. Lobes of the column. 6. Column. 7. Anther. 8. Masses of pollen attached to their brown gland.

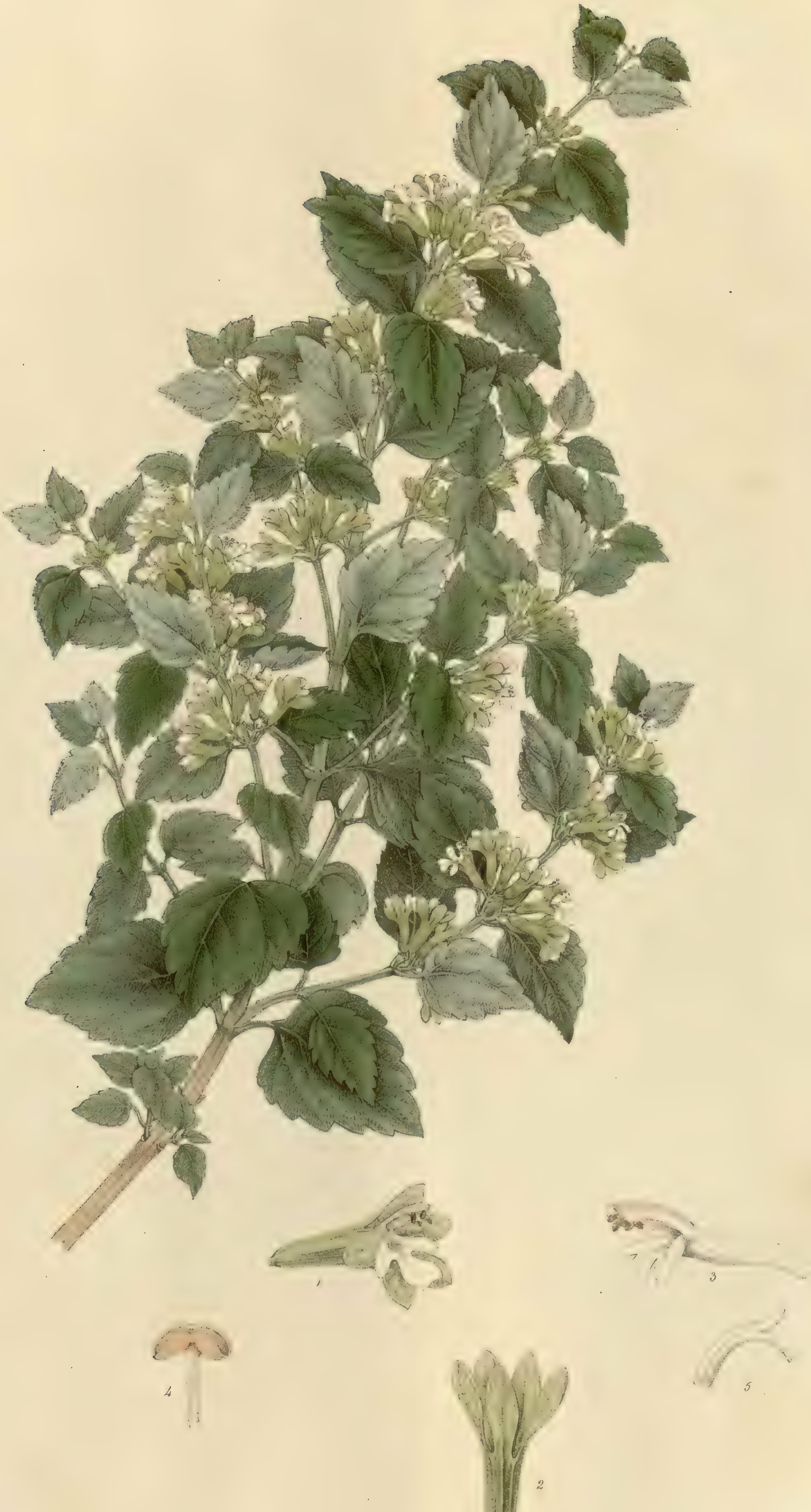
ARGYREIA FESTIVA. Tab. 76.

Fruticosa, altissimè volubilis; foliis ovatis, subcordatis, obtusis cum cuspidula, subtùs sericeo-fulgentibus; cymis pedunculatis, paniculatis.

Habitat in China; inde in Hortum Calcuttensem anno 1820 à Dom. Reeves missa. Floret Septembri, fructus maturi Januario.

---

* This Synopsis will be concluded in the 2nd volume.



Gorachand plant.; J. Lindley flor. del

Printed by Engelmann, Graf, Coindet & Co

M. Gauci lith

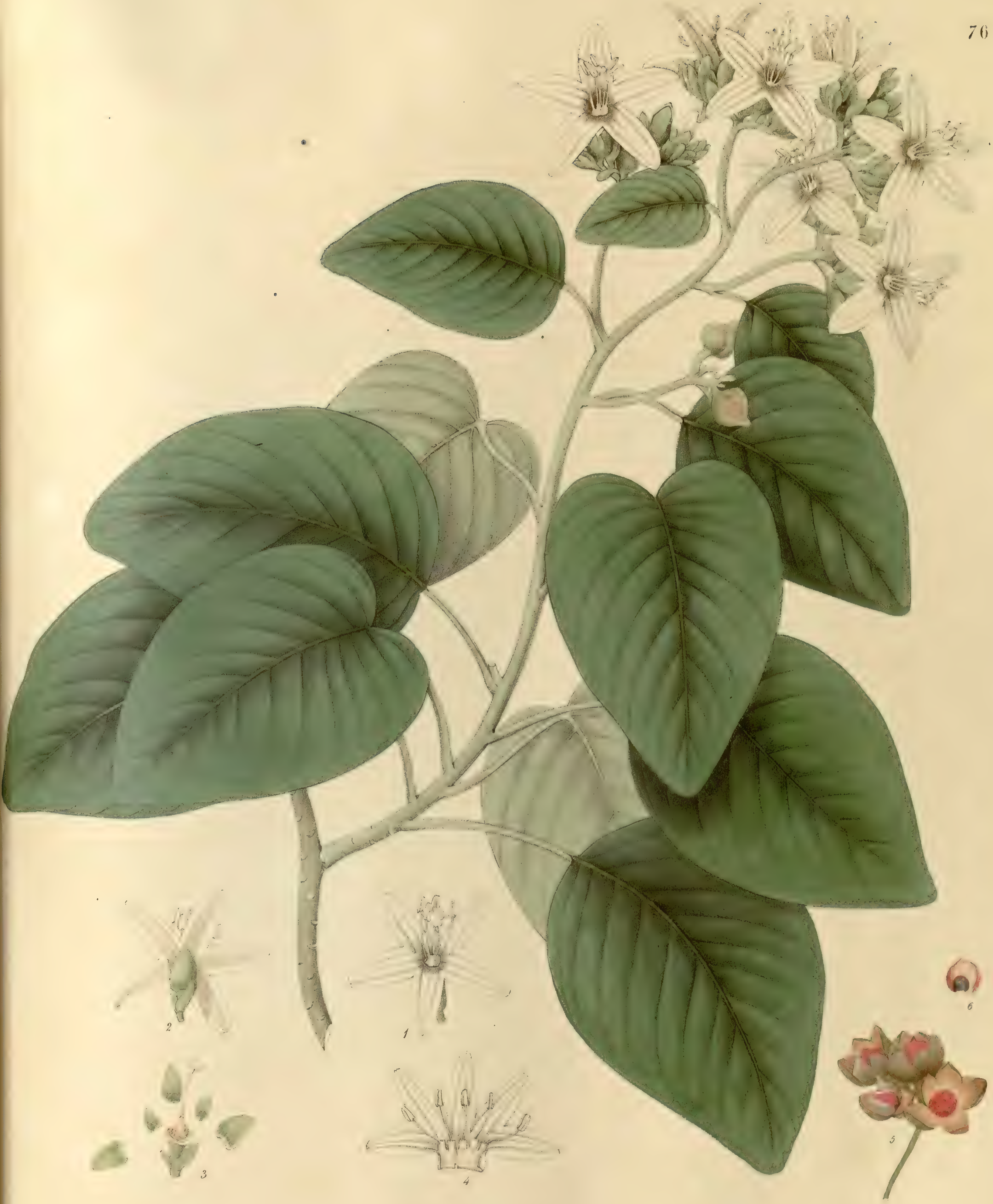
Roylea elegans

Hoya fusca

Printed by Engelmann. Graf Coindet & Co

M. Gauci lith

Gorachand del



Gorachand del.
Printed by Engelmann, Graf, Coindet & Co.
M Gauci lithog

Argyreia festiva.

Frutex maxima, super arbores altos volubilis, omnibus partibus scatens lacte albo, spisso et viscido. Rami cylindrici, cinerei, glabri, calloso-punctati; *juniores* longissimi et gracillimi, flagelliformes, adpressè sericeo-villosi, flaccidi, subpenduli. Folia approximata, patentia, ovata, obtusa cum cuspidula recurvata, basi rotundata, nunc parùm retusa vel subcordata, integerrima, 4—5-pollicaria, subcoriacea, suprà saturatè viridia, glabra, subtùs pilis densissimis, mollissimis, adpressis sericeo-fulgentia, costâ elevatâ basi utrinque glandulam gerente oblongam, planam, pilis adpressis conspersam, mox nigricantem, ad apicem petioli extensam; nervis obliquis, parallelis, approximatis, gracilibus, prominentibus, ad peripheriam incurvato-anastomosantibus. Petiolus teres, crassiusculus, adpressè pilosus, sericeus, folio tertiò vel quadruplò brevior, exstipulatus. Folia *floralia* pauca, ovato-lanceolata, 2-pollicaria. Cymæ axillares, terminalesque, pedunculatæ, multifloræ, solitariæ, subumbellatim bis terve ad apicem divisæ, inflorescentiam amplam, ovatam formantes, sericeo-argenteæ, pilosæ. Pedunculus petiolo duplò longior, cylindricus, nudus. Flores magni, speciosi, candidi, inodori, dispositi in racemis brevibus, suffulti *pedicellis* crassis, semiunguicularibus, clavatis, ad basin *bracteis* munitis duabus oblongis, obtusis, extùs sericeis, deciduis. Calyx oblongus, lineas 4 emetiens, persistens, fructûs auctus; *sepala* coriacea, valdè inæqualia, oblonga, intùs lævia, margine purpurascentia, interiora 2 minora. Corolla subrotata; *tubus* brevis, amplus, calycem longitudine haud superans, glaber; *limbus* patentissimus, ferè planus, pollicem et dimidium transversum emetiens, usque ad faucem divisus in *lacinias* 5 oblongas, obtusiusculas, suprà glabras, sulcatas, subtùs sericeo-pilosas, 3-costatas, æstivatione in formam cylindraceo-oblongam plicatas; *faux* clausa *valvis* 5 carnosis, subcucullato-oblongis, obtusis, conniventibus, densè glanduloso-villosis, vix lineolâ obsoletâ per tubum decurrentibus, staminiferis, cum laciniis limbi alternantibus. Stamina 5, exserta, parallela, ferè æqualia, glaberrima; *filamenta* ferè pollicaria, filiformia, recta, infra apicem valvularum faucis inserta; *antheræ* lineari-oblongæ, subsagittatæ, erectæ, extrorsæ; loculis parallelis, membranaceis; *pollen* dilutissimè luteum, ferè album, constans globulis grandiusculis, hyalino-echinatis. Ovarium parvum, ovatum, læve, cinctum *disco annulari*, brevissimo, flavicante, nitido, obsoletè 5-crenato; basi 2-loculare, loculis dispermis; *ovula* magna, loculum omninò replentia, erecta. Stylus filiformis, longitudine staminum. Stigma maximum, carnosum, capitatum, subhemisphæricum, profundè bilobum, densissimè papillosum. Capsula globosa, fusca, glabra, magnitudine seminis piperis nigri, monosperma, insidens fundo *arilli* completi, laxi et quasi inflati, globularis, tenuis, carnosi, coccinei, intùs membranâ coloris dilutioris, lævi obtecti, styli basi sæpè coronati, pisum maximum emetientis, suffulti sepalis concavis, patentiusculis, erubescentibus, unguicularibus. Integumentum coriaceum, crassiusculum. Perispermum parcissimum, valdè viscidum, hyalinum. Embryo pallidè viridis, contortuplicatus.

This superb shrub was sent by John Reeves, Esq. from China to the botanic garden at Calcutta in 1820, where it flowered for the first time after a lapse of five years. It has since grown to a gigantic size, reaching to the summit of a large Mango tree, its stem being as thick as the wrist, and the branches stout and very numerous. Its leaves are extremely beautiful, on account of the great regularity of their form, the dark green colour of the upper surface, and the silvery shining hoariness of the lower. The great abundance of clusters of large, white flowers, produces a very striking effect. The species comes very near to Laureiro's *Argyreia obtusifolia*, but seems to differ in the subcordate leaves, and the superior size of all its parts; it is possible, however, that it may be found to be the identical plant.

Plate LXXVI. Fig. 1. 2. Flower. 3. Calyx and bracts. 4. Corolla. 5. Cluster of fruit. 6. Arillus opened.

MELHANIA Hamiltoniana. Tab. 77.

Densissimè cano-tomentosa; foliis ovato-subcordatis, obtusis, inæqualitèr acutè dentatis; pedunculis axillaribus, petiolo duplò longioribus, 3-floris.

Novi generis species secunda, Herb. Hamilt. in Museo Banksiano.

Habitat ad loca arida, arenosa ripæ Irawaddi prope Melloon et præcipuè ad Paghamew et Yenangheun, etiam in monte Taong Dong dicta; florens sub pluviis, a mense Septembri ad Octobrem; fructigera Novembri. In horto botanico Calcuttensi floret Novembri.

Frutex 2—3-pedalis, ramosa, omnibus partibus obsita tomento denso, molli, cano, stellato, punctulis fuscis, glandulosis inserto. Rami teretes, patentes, rigidi. Folia sparsa, patentia, subapproximata, ovata, obtusa, lævissimè cordata, nunc basi rotundato-obtusa, inæqualitèr serrata, serraturis ovatis, acutis, interdum parùm sinuata, 2—3-pollicaria, utrinque tomentosa, mollissima, subtùs albicantia adque basin subquinquenervia, cæterùm nervis frequentibus, obliquis, costâque elevatis, venis reticulatis, prominentibus. Petiolus teres, pollicaris, apice intumescens. Stipulæ axillares, oppositæ, erectæ, setaceæ, unguiculares, vestitæ, deciduæ. Pedunculi axillares foliorum superiorum, terminalesque, solitarii, teretes, tomentosi, petiolis bis terve longiores, erecto-patentes, apice alternatim 3-flori. Pedicelli crassiusculi, semiunguiculares, uti calyx bracteæque cano-lanuginosi. Flores majusculi, flavi, involucrati. Calyx 5-partitus; *laciniæ* lanceolatæ, cuspidato-acuminatæ, patentes, intùs glabræ, æstivatione valvatæ. Involucrum dimidiatum, 3-phyllum, laterale, calycem extrorsùm suffultiens, eodemque parùm longius, cumque eo persistens, fructûs parùm auctum; *foliola* carnosa, ovato-subcordata, aucta, undulata, marginibus recurvata, extùs concaviuscula, subunguiculata, intermedium parùm majus, ferè semiunciale. Petala 5, glaberrima, flava, patentissima, obovata, obtusa, vel subretusa, parùm obliqua, basi contracta, calyce dimidiò longiora, æstivatione convoluto-imbricantia. Stamina 10, ipsâ basi angustissimè monadelpha, erecta, lævia; alterna antherifera, brevissima, subulata; alterna sterilia, lineari-ligulata, flavicantia, plana, basi dilatata, apice obtusa et subconvergentia, fertilibus triplò longiora. Antheræ ovatæ, erectæ, biloculares, loculis extrorsùm versis. Ovarium ovatum, tomentosum, 5-loculare; *ovula* in singulo loculo circitèr 6, biserialia, axi inserta. Stylus cylindricus, brevissimus. Stigmata 5, teretia, apice parùm divergentia, staminum sterilium longitudine. Capsula subglobosa, obsoletissimè truncato-conica, densè villosa, magnitudine pisi, calyce involucroque persistentibus laxiusculè obtecta et subocculta, vertice levissimè depressa, acutiuscula, 5-rarissimè 7-locularis, parùm ultrà medium dehiscens in *valvulas* 5, rimâ angustâ separatas, basi arctè connexas, firmas, coriaceas, intùs pallidissimè ferrugineas nitidasque. Semina duplici serie angulo loculi interiori, barbato inserta, horizontalia, obovata, retuso-subumbilicata, inæqualia, rugosula, 6 in quoque loculo, quorum aliquot sæpiùs abortiva. Integumentum coriaceum. Perispermum album, carnosum. Embryo magnus, erectus, variè plicatus, cotyledonibus foliaceis, retusis, radiculâ cylindricâ, inferâ.

That the above plant belongs unquestionably to Forskäl's genus *Melhania*, as characterized in the second edition of *Hortus Kewensis*, I have no less authority than that of Mr. Brown for stating. He has likewise informed me, that a specimen and a drawing of it are preserved in the late Dr. Hamilton's collection of Burmese plants at the British Museum, under the designation, "*novum genus: species secunda*," of which the *species prima* is *Pentapetes phœnicea*. It is a very elegant species, which delights in arid, sandy, and exposed situations. I found it on the high banks of the Irawaddi, from Melloon to Yenongheun, especially at the latter place, among the ravines near the petroleum wells; I also met with it on the mountain called Taong Dong, near Ava.

I am indebted to my friend Professor Lindley for the elegant carpological details in the accompanying plate.

Plate LXXVII. Fig. 1. Flower analysed. 2. Involucre detached. 3. Calyx and pistil. 4. Stamens detached. 5. 6. Ovary opened. 7. Capsule greatly enlarged. 8. The same, divided transversely. 9. 10. Seeds. 11. 12. The same, divided horizontally and vertically.

PONGAMIA ATROPURPUREA. Tab. 78.

Foliis 3—4-jugis; pinnis oblongis, attenuato-obtusis, coriaceis, lævibus; floribus densissimè racemosis, paniculatis, terminalibus; leguminibus ovato-lanceolatis, acutis, 1-spermis, lævibus.

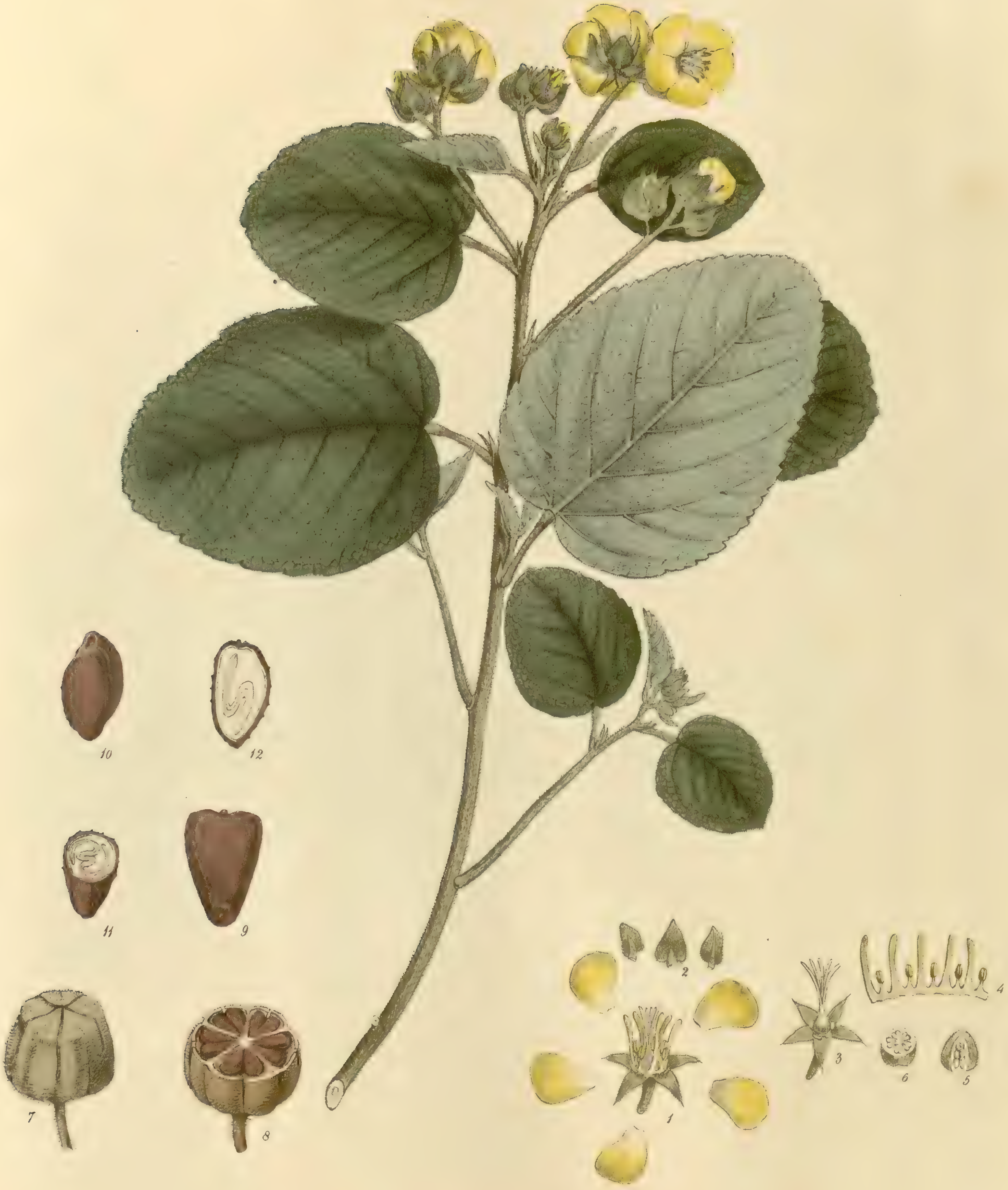
Habitat in sylvis litoreis provinciæ Martabaniæ ad Amherst, Moalmyne, alibique, florens mensibus Decembri—Februario, fructificans Martio.

Nomen Burmanicum: *Lathin* et *Chukkha*.

Arbor vasta, umbrosa, trunco præalto, recto, cortice rimoso, sordidè fusco. Ramuli cylindrici, cinerei, calloso-punctati; *novelli*, uti pedunculi cano-pubescentes. Folia patentia, alterna, petiolata, impari-pinnata, pedalia et ultrà. Pinnæ paribus 3 vel 4 suboppositæ, præter terminalem imparem, oblongæ, integerrimæ, attenuatæ, obtusiusculè acuminatæ, basi obliquè rotundatæ, latere nempè inferiore angustiore et acuto, brevè petiolatæ, coriaceæ, læves, atrovirides, suprà nitidæ, subtùs nervis gracilibus, valdè obliquè excurrentibus, suboppositis, costâque prominentibus, reticulato-venulosæ; 5-pollicares, deorsùm decrescentes, infimæ sublatiores; terminalis proximo pari minor. Petiolus communis cylindricus, exsulcus, 6—8-pollicaris, vix puberulus, basi valdè tumidus, infra jugum primum pinnarum 2- vel 3-pollicaris, inter paria harum gracilis, 2-pollicaris, ad insertiones levitèr dilatatus; *partiales* cylindrici, rugosuli, 3-lineares, basi articulati. Stipulæ nullæ nisi protuberantia parvula, obsoleta, utrinque ad petiolorum insertionem. Panicula magna, terminalis, ovata, elongatione rami parùm elevata, constans racemis pluribus, erecto-patentibus, cylindricis, digitum longum, diametro pollicari, approximatis, subsessilibus, densifloris, simplicibus, nunc bifidis. Flores numerosissimi, speciosi, inodori, atropurpurei, intùs pallidiores, pedunculati, undique sparsi, valdè approximati. Raches cylindraceæ, subcarnosæ, crassæ, ad pedunculorum insertionem prominenter foveolatæ, subangulatæ, fusco-pubescentes. Pedunculi carnosi, teretes, purpurascentes, apice infra calycem *bracteolis* 2 oppositis, lanceolatis, minutis, lineas 2 longi. Calyx cyathiformis, amplus, pedunculo duplò longior, extùs atropurpureus, lævis, nitidus, intùs roseus, pilosulus; *faux* obliquè subtruncata, obsoletissimè et obtusè 4-dentata, deorsùm porrectior. Corolla calyce quadruplò major; *vexillum* lato-ovatum, obtusum, propter margines incurvos concaviusculum, unguiculare, adscendenti-recurvatum, disco maculâ oblongo-triangulari, e flavo viridescente; ungue brevi curvo; *alæ* cuneato-oblongæ, obtusæ, vexillo breviores, carinam æquantes illæque parallelæ et adpressæ, basi hinc dente curvo, illinc unguiculatæ; *carina* descendens, obtusa, basi bifidâ unguiculata, hincque bidentata. Stamina 10, lævia, carnosa, carinâ inclusa, diadelpha; apicibus liberis, incurvis. Antheræ ovatæ. Ovarium pedicellatum, oblongum, adpressè puberulum, 3—4-sporum, basi circumdatum *disco* brevi, subcylindrico, carnoso, truncato, subtùs fisso. Stylus brevissimus, subulatus, puberulus, adscendens. Stigma acutum. Legumen magnum, 3—4-pollicare, læve, fuscum, lucidum, ovato-lanceolatum, acutum, lateribus convexis, margine dorsali gibboso-convexo, lato, vix obsoletè pedicellatum, pedicello calycem immutatum, persistentem haud superante. Semen solitarium, magnum, ovatum, convexum, suturæ superiori ope funiculi brevis insertum, brunneum, lucidum.

This very stately tree constitutes a large portion of the dense forests on the shores of Martaban and Tenasserim. I found it growing in great abundance at Amherst and Moalmyne, and on the sea-side, towards the river called Chappedong. Nothing can be imagined more beautiful than the crown of the tree, when thickly covered with its dense panicles of deep purple flowers. The wood is much esteemed by the Burmese and Taleyn people, who employ it for beams and rafters in their houses. I was told that they eat the tender leaves.

Plate LXXVIII. Fig. 1. 2. Flowers. 3. The same dissected. 4. Calyx. 5. Pod opened.

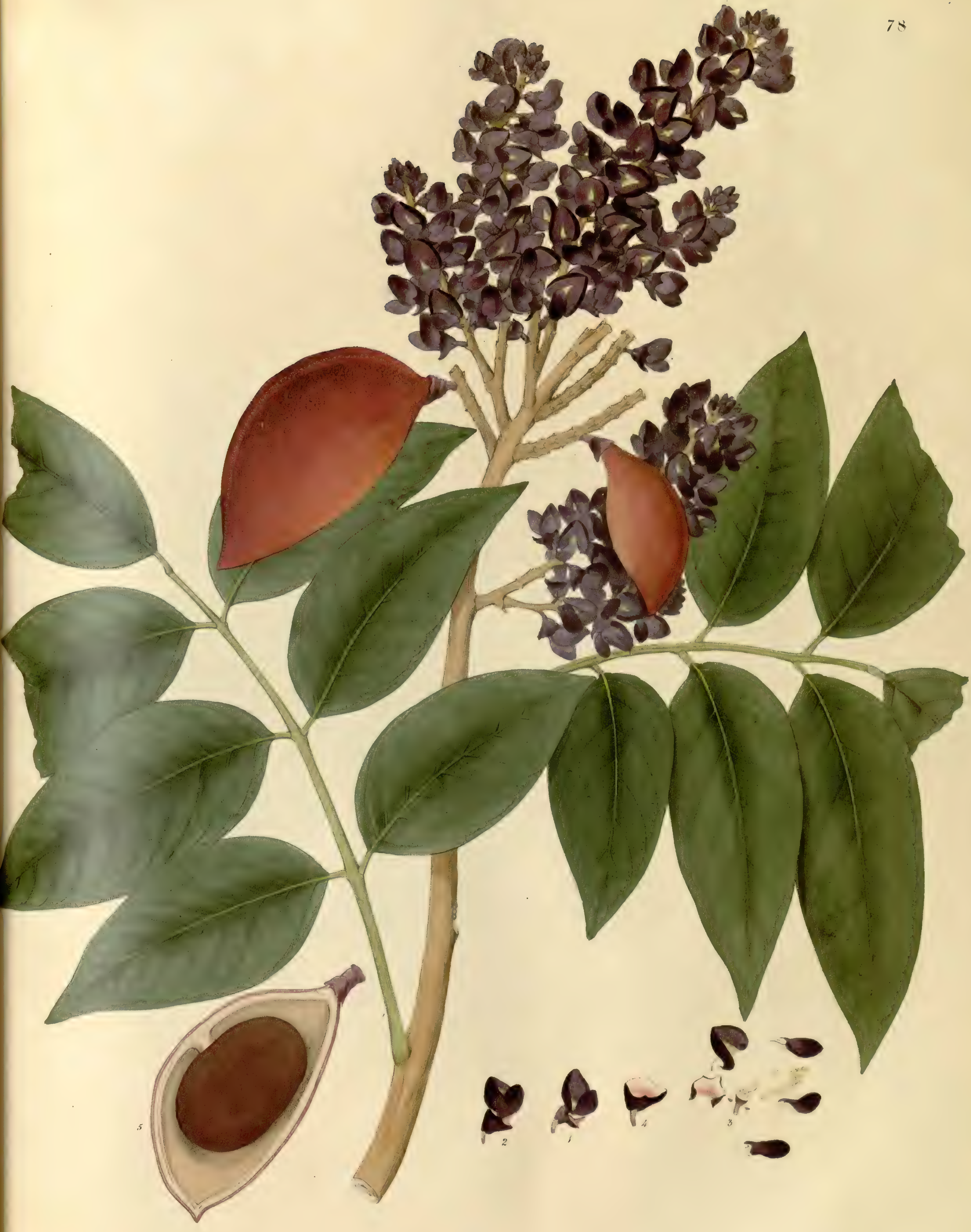

10
12
11
9
7
8
2
4
3
6
5
1

Vishnupersaud plant. et flor.
J Lindley fruct. delin

Printed by Engelmann, Graf, Coindet & Co.

M Gauci lith.

Melhania Hamiltoniana.



Pongamia atropurpurea

BOMBAX INSIGNE. Tab. 79. 80.

Inerme; foliis 9-foliolatis, foliolis obovatis, brevè acuminatis, subtùs petiolisque glaucis; corollâ calyce bilobo quadruplò, staminibus duplò longiore; petalis extùs villosis; stigmate 5-lobo, subulato; capsulâ longissimâ.

Crescit prope Yenangheun in regno Burmanico. Floret initio anni.

Arbor inermis, altitudinis pedum 20 ad 30. Truncus crassus, æqualis, cortice glabriusculo. Ramuli crassi, cylindrici, cinereo-glaucescentes, petiolorum delapsorum cicatricibus notati, glabri. Folia versus ramulorum extremitates sparsa, petiolata, peltatim 9-foliolata, decidua. Foliola obovata, brevè acuminata, integerrima, deorsùm attenuata, coriacea, 5-pollicaria, glaberrima, subtùs glauca, nervis suboppositis, approximatis, intra marginem arcuatis et anastomosantibus, cum costa gracili elevatis, venis reticulatis. Petiolus *communis* cylindricus, glaucus, suprà sulcatus, basi parùm intumescens, apice suborbiculato-planus; *partiales* ½-pollicares vel pollicares, basi articulati, suprà sulcati. Flores maximi et speciosissimi, ruberrimi, per ramulos nudos sparsi, solitarii, suffulti *pedunculo* valdè crasso, clavato, semipollicari, cum basi contracta calycis articulato. Calyx valdè crassus et coriaceus, urceolato-globosus, sesquipollicaris, corollâ quadruplò brevior, extùs rufescens, glaber, intùs sericeo-lanuginosus, ore truncato inæqualitèr et obtusè 2-lobo, demùm utrinque ad basin usque fisso. Petala 5, oblonga, obtusa, deorsùm parùm angustata, 5—6-pollicaria, recurvato-patentissima, crassa et coriacea, caduca, suprà ruberrima glabra, subtùs villis copiosis, sericeis obtecta, pallida. Stamina plurima, glabra, petalis dimidiò ferè breviora, sursùm seriebus 4 vel 5 ordinata, erecto-divergentia; *filamenta* carnosa, filiformia, basi inæqualitèr connata in tubum amplum, ½-pollicarem, supernè irregularitèr multifidum; *antheræ* reniformes, flavæ, dorsi medio adfixæ. Ovarium ovato-conicum, calyce pluriès brevius. Stylus cylindricus, erectus, glaber. Stigma supra stamina parùm elevatum, carnosum, 5-lobum, lobis subulatis, patulis, inæqualibus. Capsulæ *valvulæ delapsæ* planæ, lignosæ, oblongæ, 10-unciales, ultra pollicem latæ, basi attenuatæ, apice incurvâ acutæ, utrinque glabræ, extùs fuscæ.

The only place where I met with this magnificent tree was among ravines, on a very arid tract of country, at a distance of a few miles from the petroleum wells on the Irawaddi, near the town of Yenangheun, in the beginning of January 1827. I saw a number of individuals entirely destitute of leaves, but covered with a profusion of superb, vivid red flowers, the petals of which were successively dropping down among the withered leaves and fragments of the capsules, which lay scattered on the ground. In stature the tree is smaller than the common cotton-tree of India, (*Bombax malabaricum*, DeCand.), but the flowers are nearly twice as large. I found the last-mentioned species very plentifully along the banks of the Irawaddi, round villages and in forests, together with the majestic palm called *Borassus flabelliformis*, the Tamarind, and *Ficus religiosa*, all of them attaining a very great size. On the mountain Taong Dong I met with a variety of the cotton-tree with white instead of red flowers; and on the banks of the river Saluen in the province of Martaban I observed the common red sort growing in great abundance.

Plate LXXIX. Fig. 1. Calyx opened. 2. Part of the stamens.

WIGHTIA.

Calyx 4-dentatus. Corolla infundibuliformis; limbi 4-fidi laciniâ superiore bilobâ. Stamina 4, didynama; *sterile discusque hypogynus* nulla. Stigma clavatum, indivisum. Capsula follicularis, 2-valvis. Dissepimentum parallelum, utrinque placentiferum, demùm liberum. Semina longitudinaliter imbricata, utrinque alata. Radicula infera.

Classis Linneana: *Didynamia Angiospermia.*

Ordo naturalis: *Bignoniaceæ*, Brown.

Frutex maximus, altè volubilis; foliis oppositis, simplicibus, pedunculisque obtectis pube minutâ, stellatâ, subsessili, solubili. Racemi axillares, maximi, pedunculis trichotomis. Ab omnibus generibus bignoniaceis videtur abludere absentiâ completâ disci hypogyni et staminis sterilis, capsulâ folliculari, valvularum marginibus inflexis dissepimentum adfigentibus, seminibus erectis, radiculâ inferâ.

Genus appellatum in honorem amici admodùm æstumati Richardi Wight, historiæ naturalis totius in peninsula Indiæ Orientalis cultoris devotissimi, botanici optimè meriti, peregrinatoris indefessi.

WIGHTIA GIGANTEA. Tab. 81.

Crescit in montibus Napaliæ Sumbunath et Sheopur, florens Decembri et Januario, fructificans Majo.

Truncus altissimè super arboribus volubilis, diametro pollices 6 usque ad 12 emetiens, supernè divisus in ramos multos volubiles, vel laxè subpendulos. Ramuli crassi, cylindrici, læves, fusci, punctis callosis, cinereis, frequentibus scabri, ad foliorum insertionem parùm complanati; tenelli cinereo-villosi. Folia opposita, subdecussatim patentia, ad ramulorum apicem parùm approximata, decidua, ovata, attenuato-acuminata, integerrima, basi rotundato-acuta, palmaria ad pedalia, coriacea, suprà glabra, saturatè viridia, subtùs obtecta pube copiosâ, minutâ, incanâ, mollissimâ, stellatâ, subsessili, solubili et deciduâ; ætate glabra, costâ nervisque distantibus, obliquis, suboppositis, prominentibus, flavidis, venis transversè reticulatis. Petiolus pollicaris, teres, subgracilis, pubescens, suprà sulcatus. Stipulæ nullæ. Racemi magni, axillares, solitarii, recti, adscendentes, multiflori, pedunculati, oblongi, pollices 3 crassi, 6 ad 12 longi, obtusi, propter folia pleraque delapsa *paniculam* formantes terminalem, maximam, ovato-oblongam, nutantem. Pedunculus *communis* 2—4-pollicaris, rachisque crassi, lignosi, calloso-punctati, pubescentes; *partiales* suboppositi, sæpiùs incurvi et subadscendentes, $\frac{1}{2}$-pollicares, 3-flori vel bìs trichotomi, cylindrici, ferruginei, ad divisuras articulati. Flores rosei, inodori, pollicares, suffulti *pedicello* brevi, subcarnoso, ad medium bracteolâ minimâ, lineari, caducâ munito. Calyx campanulato-ovatus, pubescens, lineas 4 longus, persistens, fructûs immutatus, basi obtusus, 4-fidus; *laciniæ* ovatæ, obtusæ, æquales. Corolla infundibuliformis, calyce 4-plò longior, extùs pubescens. Tubus compressiusculus, sursùm sensìm ampliatus, dorso gibbosus et subvillosus. Limbus patens, 4-fidus, tubo dimidiò brevior; laciniæ ovatæ, obtusæ, ferè æquales: *superior* vix major, adscendens, biloba, basi subcordata; *inferior* descendens, concava; *laterales* subreflexæ; *faux* hians, levitèr compressa. Stamina 4, didynama, parallela, subadscendentia, glabra; *filamenta* carnosa, subulata, ad basin tubi corollæ inserta, 2 parùm breviora; *antheræ* subsagittato-ovatæ, majusculæ, versatiles, 2-loculares, exsertæ, loculis marginalibus, parallelis, æqualibus. Stamen *sterile* nullum. Ovarium ovatum, glabrum, obsoletè 6-striatum, 2-loculare, polysporum; *ovula* placentæ septali, carnosæ densè inserta, subadscendentia. Stylus cylindricus, glaber, staminibus vix longior, apice parùm incurvus. Stigma carnosum, clavatum, obtusum, indivisum, nutans, roseum. Disci *hypogyni* nullum vestigium. Capsula follicularis, lævis, fusca, in calyce brevi, immutato sessilis, oblonga, subcylindrica, medio convexa, utrinque attenuata, acuta, 2-pollicaris, 2-valvis; raró (abortione loculi alterius) 1-locularis, 1-valvis, tuncque obliqua propter marginem suturalem gibbosum. Valvulæ coriaceæ, intùs ferrugineæ et nitidæ, scaphoideæ, cuspidatæ, marginibus latis, texturâ tenuioribus, cum istis oppositæ valvulæ (vel alterius lateris dum unica tantùm valvula adsit) contiguis, inflexis, dissepimentumque adfigentibus; dehiscentiâ recurvatæ, demùmque plano-expansæ, ovato-lanceolatæ. Dissepimentum spongiosum, angustum, persistens, utrinque gerens *placentam* oblongam, convexam, carnosam, foveolis longitudinalibus, numerosis, parallelis notatam, stipitatam processu lato, e dissepimenti latere orto, spongioso, denique a basi ad medium solutam, semiliberam, seró cum ipso dissepimento valvisque seorsim decidentem. Semina valdè numerosa, parva, oblonga, tenuia, lineas 4 emetientia, longitudinalitèr densè imbricata, marginata membranâ tenuissimâ, cinereâ, conflatâ e cellulis copiosis, ex umbilico exteriore, infra basin seminis lateralitèr sito, reticulatim ordinatis, utrinque in alam linearem, obtusam productâ. Integumentum tenuissimum. Perispermum nullum. Embryo cylindricus, albus, *cotyledonibus* obtusis, *radiculâ* inferâ.

This arborescent climber constitutes a new genus, very distinct from all the others belonging to *Bignoniaceæ*, the character of which tribe, as hitherto established, it appears to infringe in some degree, although not essentially. It attains a very gigantic size, overtopping trees of considerable height, and nearly overwhelming them by the weight of its numerous branches. I have great pleasure in dedicating it to my much-esteemed friend Richard Wight, Esq. of the Honourable East India Company's medical service, and lately in charge of the botanical establishment at Madras. This indefatigable and excellent zoologist as well as botanist, during several journeys performed by him in the peninsula of India, has by his indefatigable zeal and exertion brought together very extensive collections of preserved skins of animals, and dried specimens of plants, which, both in regard to their richness and the beauty of their preservation, deserve to be ranked among the finest and most interesting that have ever been made. These collections were sent to the Museum at the India House about two years ago, and the numerous duplicates of the botanical portion are now in a course of distribution among the principal herbariums of Europe, public as well as private. A number of his valuable drawings and descriptions of rare Indian plants are on the eve of being published in the 2nd volume of Professor Hooker's admirable Botanical Miscellany.

To my highly esteemed friend Professor Lindley I am indebted for the carpological part of the accompanying plate.

Plate LXXXI. Fig. 1. Flower. 2. Calyx and pistil. 3. Corolla opened. 4. 5. Ovary opened. 6. 7. Capsules. 8. The same, wanting one of its cells and valves. 9. Placenta and seeds. 10. Seeds. 11. The same, much enlarged. 12. A portion of the reticulated membrane which surrounds the seed, highly magnified. 13. A detached cell of the membrane of the seed. 14. Embryo.

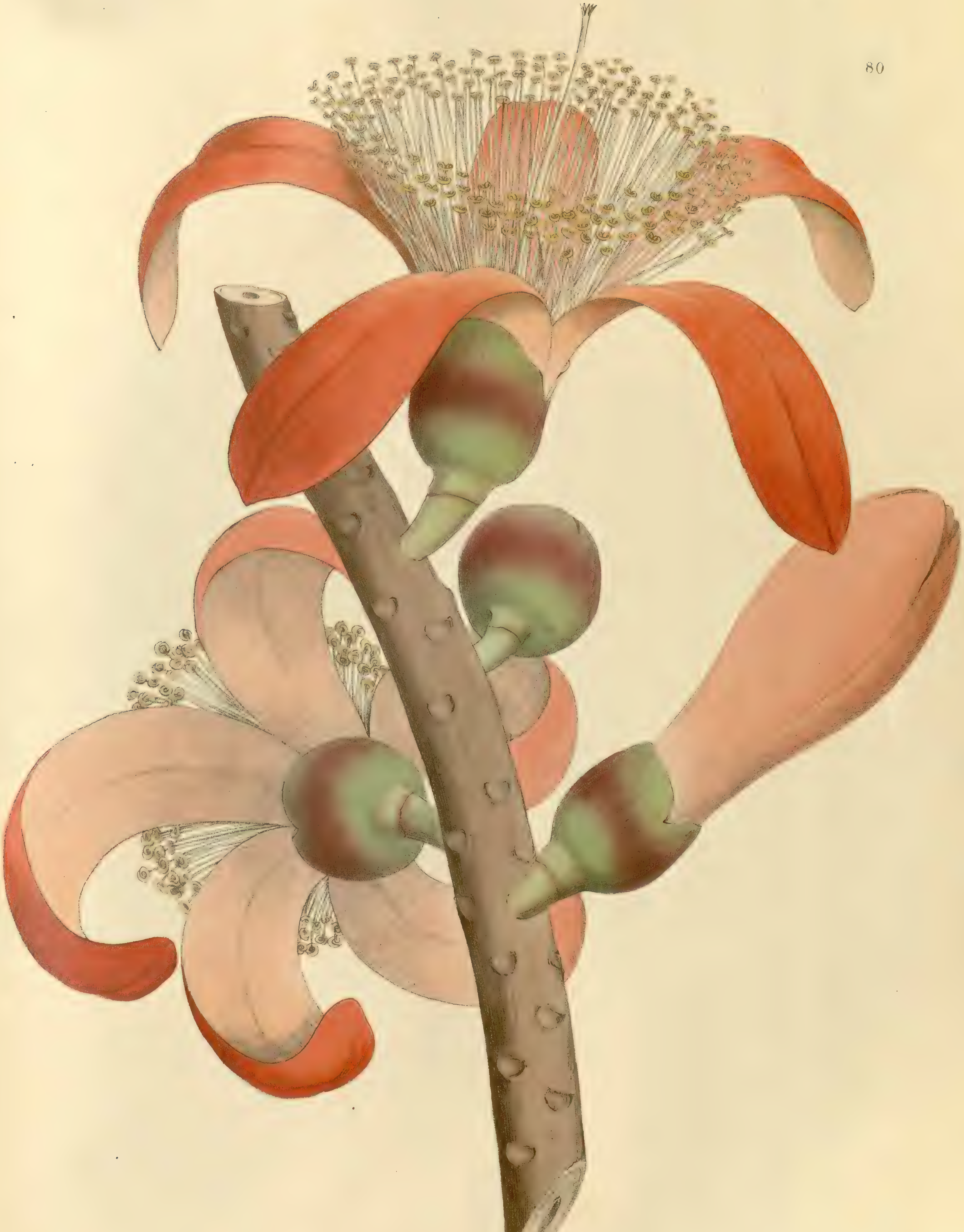
BARLERIA POLYTRICHA. Tab. 82.

Fruticosa, hirsuta; foliis oblongis vel subellipticis, acuminatis, brevè petiolatis; spicis axillaribus, brevibus, secundis; bracteis magnis, oblongis, undulatis.

Crescit in montibus Taong Dong et Prome, alibique secus ripam fluminis Irawaddi, florens et fructigera Octobri—Decembri. Ad Tavoy oræ Tenasserim legit Gulielmus Gomez, plantarum collector.

Planta fruticosa, 3-pedalis, erecta, parcè ramosa, omnibus partibus hirsuta pilis densis, longis, pallidè ferrugineis. Caulis cylindricus, ferè simplex, calamum scriptorium crassus; *rami* pauci, simplices, erecto-patentes. Folia opposita, patentia, interstitiis sæpiùs longiora, cuneato-oblonga, acuminata, integerrima, a tertia exteriore parte deorsùm attenuata, nunc elliptico-oblonga, utrinque attenuato-acumi-

Bombax insigne

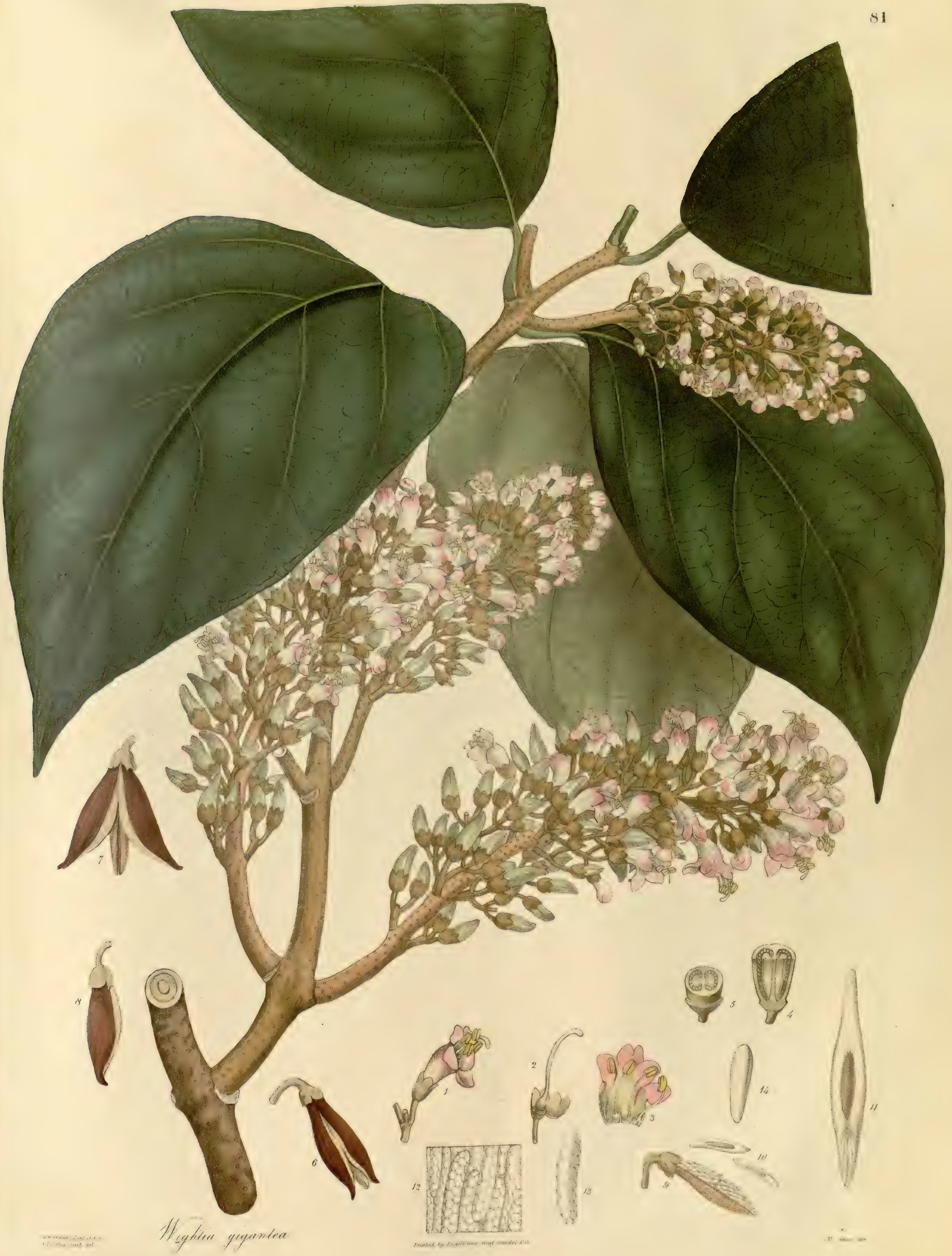


Vishnupersaud del.

Printed by Engelmann Graf Coindet & Co.

[illegible]

Bombax insigne

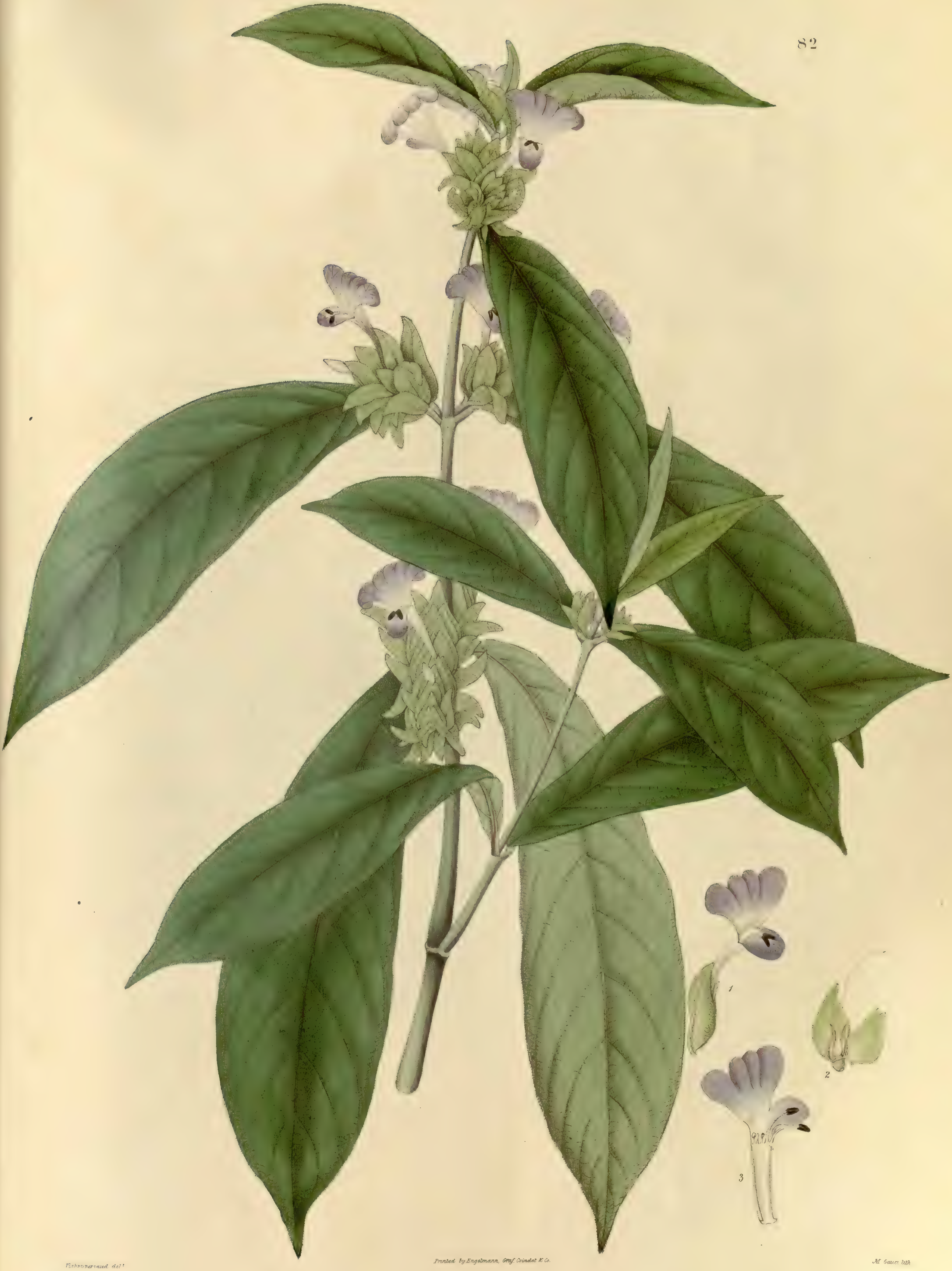

1
2
3
4
5
6
7
8
9
10
11
12
13
14

[illegible]

Wightia gigantea

Printed by Engelmann Graf Coindet & Co.

M. Gauci lith.



Vishnupersaud del.t

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lith.

Barleria polytricha.

nata, subsessilia, 5—8-pollicaria, pollices 2 ad 5 lata, membranacea, atro-viridia, glaucedine parcissimâ opaca, utrinque, præsertim ad paginam aversam, juxta costam nervosque obliquos hirsuta, reticulata. PETIOLUS brevissimus, vix ½-uncialis. FLORES magni, cœrulei, secundi, digesti in *spicas* axillares, oppositas, erectas vel recurvatas, brevè pedunculatas, 2—3-pollicares, valdè hirsutas. BRACTEÆ oblongæ, attenuato-acutæ, pollicares, subunguiculatæ, levitèr undulatæ, inferiorem spicæ partem occupantes, subdecussantes. CALYX 4-phyllus; *foliola 2 exteriora* parùm inæqualia, lato-ovata, acuta, basi rotundatâ adnata, multinervia, sesquipollicaria, intùs lævia et nitida, margine crenulato-ciliatâ; horum interius paullò minus, apice nunc 2-dentatum; *interiora* 2 linearia, acuminata, cum exterioribus alternantia, iisdemque dimidiò breviora, 1-nervia, membranaceo-marginulata. COROLLA infundibuliformis, calyce exteriore duplò longior, cœrulea; *tubus* gracilis, pallidus; *limbi* bilabiati labium superius adscendens, subrevolutum, 4-lobum, lobis ovatis, obtusis, exterioribus parùm majoribus, labio inferiori, integro similibus. STAMINA 4 fertilia, didynama, *filamentis* puberulis, *antheris* bilocularibus; 2 longiora exserta; 2 brevia; præterea quintum *sterile*, brevissimum, puberulum. STIGMA lineare, carnosum. CAPSULA sessilis, calycis foliolis exterioribus inclusa, clavata, compressa, acuta, fusca, nitida, 4-sperma. SEMINA magna, plana, orbiculata, adpressè sericeo-villosa, retinaculis longissimis sustenta.

This beautiful species approaches very nearly to *Barleria strigosa* Willd., which is, I believe, *Barleria cœrulea* of Roxburgh's manuscript Flora Indica; but it seems to differ in being far more hairy on all its green parts, and in the leaves being narrower. The accompanying representation exhibits the plant, which was reared in the Botanic Garden at Calcutta, from seeds gathered at Meaong on the Irawaddi, below Prome, on low, shady ground. The Tavoy specimens resemble this plant; but those I gathered at Prome and on Taong Dong, near Ava, have broader leaves, and ought perhaps to be referred to the species mentioned above. They are all very ornamental plants, on account of their large, lilac flowers, which are produced in great abundance during the cold season.

Plate LXXXII. Fig. 1. Flower. 2. Calyx opened. 3. Corolla opened.

RUELLIA NEESIANA. Tab. 83.

SUFFRUTICOSA; caule subsimplici; foliis oblongis, acuminatis, integerrimis, basi acutis, subtùs pubescentibus, supremis ovato-cordatis, sessilibus, amplexicaulibus; floribus terminalibus, paucis, racemoso-paniculatis, glanduloso-pubescentibus, tubo gracili, longissimo; staminibus brevissimis, antherarum loculis inæqualibus; capsulâ unguiculatâ.

Hab. in montibus Sillet vicinis, florens mense Octobris, fructificans Decembri. In hortum Calcuttensem introducta anno 1825.

CAULIS suffruticosus, 3-pedalis, simplex, vel parcè ramosus, supernè *ramique* obtusè quadrangulares, 4-sulcati, sulcis duobus oppositis pilosis, cæterùm glabri. FOLIA pauca, opposita, patentia, *inferiora* petiolata, oblonga, acuminata, integerrima, basi acuta, 6—10-pollicaria, *superiora* sessilia, ovato-cordata, subamplexicaulia; suprà atroviridia, glabra, subtùs ad nervos prominentes, obliquos pubescentia, subcoriacea. PETIOLUS ½-pollicaris, suprà plano-sulcatus. FLORES magni, speciosissimi, pauci, dilutè rosei, digesti in racemum terminalem, nudum, elongatione caulis plùs minùsve elevatum, nunc basi compositum, subpaniculatum. PEDUNCULI teretes, calycesque pilis copiosis, capitellato-glandulosis vestiti, subviscosi. PEDICELLI brevissimi, basi suffulti bracteolâ lineari, villosâ. CALYX oblongus, lineas 3 emetiens, profundè 5-partitus; *laciniæ* lineares, erectæ, obtusiusculæ, æquales. COROLLÆ *tubus* longissimus, gracilis, 2-pollicaris, pubescens, apice dilatatus in *faucem* amplam, ovatam, intùs pallidam, punctatam, pubescentem; *limbus* patens, bilabiatus, 5-fidus; *lobi* ovati, obtusi, inferiores 2 vix minores. STAMINA 4 brevissima, didynama, ad fundum faucis occulta. FILAMENTA crassa, carnosa, subulata, pilosula, parùm incurva, per tubum lineolis elevatis decurrentia. ANTHERÆ magnæ, violaceæ, glanduloso-pubescentes, loculis vertice obtusis, basi acutis, inæqualibus, altero nempè breviore. STYLUS capillaceus. STIGMA villosum, subinfundibuliforme. CAPSULA clavata, longè unguiculata, acuta, 4-sperma, ferè 1½-pollicaris; *semina* orbiculata, retinaculis longis sustenta.

I have seen a variety of this most charming species, also a native of the mountains bordering on Sillet, resembling it in every respect, except in stature and in the size of its flowers, which are one-third smaller.

Plate LXXXIII. Fig. 1. Calyx opened. 2. Corolla opened. 3. 4. Two pairs of stamens. 5. Capsule. 6. A detached valve.

APOSTASIA. *Blume Bydrag*. p. 423.

" Perianthium limbo sexpartito, regulari. Stamina antherifera 2, quorum Filamenta foliolis lateralibus interiorum perianthii opposita, infrà connata cum basi Styli suprà cylindracei, et vel nudi, vel hinc Filamento tertio castrato, altiùs adnato, foliolo antico exteriorum opposito, appendiculati. Antheræ biloculares, longitudinalitèr dehiscentes. Pollen e granulis simplicibus, solutis. Stigma obtusum, obsoletè bi-trilobum. Capsula trilocularis, polysperma. Semina ovata, testâ nucleo conformi."—*Brown MSS.*

Classis Linneana: *Gynandria Diandria.*

Ordo naturalis: *Orchidearum* Trib. *Apostasieæ* Br.

Obs. " This very remarkable genus, founded on *Apostasia odorata*, was first published in 1825 by Dr. Blume in the work referred to; but in 1821 a nearly related species was discovered in the valley of Noakote in Nipal, by the plant-collectors of Dr. Wallich, who, in his manuscripts, which I have had the advantage of consulting, named it *Mesodactylis deflexa*, and at the same time had the drawing made, which is here given.

" I have followed these two distinguished botanists in regarding *Apostasia* as belonging to, or at least as most nearly related to, *Orchideæ*. It exhibits, however, very few of those characters generally considered as essential to that family of plants.

" In its antheræ, pollen, style, and stigma (all which parts are so remarkably modified in *Orchideæ*) *Apostasia* does not materially differ either in form, structure, or economy, from the more regular-flowered families of *Monocotyledones;* and in its trilocular ovarium it is distinguished from all other genera of the order to which it is here appended.

" On the other hand it agrees with *Orchideæ* in the structure, as far as I am able to ascertain, of its minute seeds; in the reduced number of stamina, and probably, with some genera of the family, in the order of their reduction; in the filaments being at base connate with the lower part of the style; and in a great degree in habit. In endeavouring to estimate the importance of the several points of resemblance and difference here enumerated, with a view to decide on the degree of relationship *Apostasia* bears to *Orchideæ*, it is necessary to consider the relative position of the parts of the flower in that order, and also in *Scitamineæ*, the family most nearly allied to it.

" The relation of stamina to the parts of the floral envelope in *Apostasia* is in the first place to be determined. The two antheriferous filaments, which I have more particularly examined in the unexpanded flowers of *Apostasia nuda*, appear to be opposite to the two lateral segments of the inner series of the perianthium; and the sterile filament in *Apostasia Wallichii*, and no doubt also in *A. odorata*, is opposite to the anterior segment of its outer series.

" Several years since I advanced the opinion, 'That in a complete flower, whose parts are definite, the number of stamina and also of pistilla is equal to that of the calyx and corolla united in *Dicotyledones*, and of both series of the perianthium in *Monocotyledones**.'

" It may be further observed, that in cases of reduction of pistilla it is generally found, that the remaining carpella when more than one, but inferior in number to that of one series of the floral envelope, correspond in position with parts of both series, and with very few exceptions, whether distinct or confluent, are all equally developed. Stamina, on the other hand, in cases of equal reduction, generally belong to one of the series only, or, if corresponding with parts of both series, are usually in different states of developement, as they are here described to be in two species of *Apostasia*.

" This appearance of part of the inner series of stamina has not hitherto been expressly remarked in *Orchideæ*. It is not improbable, however, that the same relation to perianthium exists in the lateral antheriferous stamina of *Cypripedium*†, as well as in the sterile petaloid processes similarly situated in other genera, as in *Diuris*. And the third stamen of the inner series, still more altered in form, may be considered as present in certain New Holland genera, especially *Glossodia*, where this supposed stamen is placed within the labellum, but entirely distinct from it; in *Epiblema*, *Pterostylis*, and *Chiloglottis*, in which an analogous appendage similarly situated coheres in various degrees with that division of the perianthium; and perhaps it may be considered as indicated in all cases where the labellum is furnished with a process, however minute, arising from its axis.

" If the view here taken of the position of the lateral filaments in *Cypripedium* and *Diuris* be adopted, it may be remarked that indications or rudiments of the two stamina necessary to complete the number in *Orchideæ*, of those, namely, corresponding with the lateral segments of the outer series of the perianthium, have not yet been observed in the regular structure of any plant of the order. They have however been occasionally met with in monstrous flowers of *Habenaria bifolia*, in more than one spike of which I have found the greater number of flowers triandrous, the three antheræ being equidistant, and placed exactly opposite to the three divisions of the outer series of the perianthium, the inner series of which remains in its ordinary state.

---

* In 1826, in *Appendix to Denham and Clapperton's Travels, p.* 237.

† *Prodr. Fl. Nov. Holl.* 1. *p.* 309.

"M. Achille Richard* has given an account of an analogous monstrosity in *Orchis latifolia*. In this case of a triandrous *Orchis*, M. Richard, having adopted the opinion, which I believe I was the first to advance†, of the origin or nature of the auriculæ of the anthera of many genera of *Orchideæ*, considers the additional antheræ as formed by the perfect developement of these auriculæ. This view however cannot be taken of the monstrosity of *Habenaria bifolia*, in which not only the auriculæ of the anterior or ordinary stamen are distinctly present, but two other similar processes, one on the anterior side of each of the additional antheræ, also exist; a fact which throws considerable doubt on the correctness of the view here referred to of the nature of these processes in *Orchideæ*, unless the same hypothesis could likewise be extended to all cases of trifid filaments, as those of *Allium* and *Deutzia*, to which the auriculæ in *Orchideæ* may be said to be analogous.

"In *Scitamineæ*, the family most nearly akin to *Orchideæ*, the complete number of stamina may be considered very generally present. Only one, however, is antheriferous; and this perfect stamen, instead of corresponding, as in *Orchideæ*, with the anterior segment of the outer series of the perianthium, is placed within the posterior segment of the inner series; the two remaining barren stamina of the same series being the epigynous glands or filaments existing in all the genera of this order except *Costus*‡; while the outer series of stamina, very differently modified, form the innermost or supplementary series of the perianthium.

"This view of the origin of that series was many years ago communicated to me in conversation by the celebrated Correa de Serra; but was first, I believe, published in 1826 by Professor Lestiboudois in a memoir§ in which the correctness of the opinion held, namely, that *Scitamineæ* and *Canneæ* possess rudiments or modifications of six stamina, is remarkably contrasted with the erroneous views taken, or rather adopted, of the greater part of the structures adduced in support of it.

"A more accurate account of the relative position of parts was given in 1828 by my ingenious friend Professor Von Martius. In confirmation of the opinion, I may remark that the cells of the ovarium, whose relation to the floral envelope appears to be very uniform in *Monocotyledones*||, are in *Scitamineæ* opposite to the supposed petaliform stamina, and to the divisions of the outermost series of perianthium. I have formerly pointed out the difference in position of the antheriferous stamen in *Scitamineæ* and that of *Canneæ* or *Maranteæ*, and have remarked that this difference is in some degree analogous to that existing between *Cypripedium* and the other genera of *Orchideæ*¶.

"*Apostasia* in its trilocular ovarium differs from all the genera of *Orchideæ;* but an analogous difference occurs in *Scitamineæ*, in which *Globba* is distinguished from every other genus in having its ovarium unilocular, with three parietal placentæ. And in both these families it may be proved that the constituent parts of the compound ovarium, whether unilocular or trilocular, agree in position, or in their relation to the divisions of the perianthium.

"Lastly, *Apostasia* in the economy of impregnation, or the state of the pollen, and the manner of its application to the stigma, probably differs essentially from all *Orchideæ*, except perhaps *Cypripedium* and possibly *Vanilla*. But a similar difference, and in a degree still more striking, exists between *Apocineæ*, as I have formerly proposed to limit that order, and *Asclepiadeæ*, which can only be regarded as a subdivision of the same natural class."—*Brown MSS.*

APOSTASIA WALLICHII. Tab. 84.

ANTHERARUM lobis posticis inæqualibus, filamento tertio castrato.—*Brown MSS.*

Apostasia Wallichii, Brown MSS.

Habitat in valle Napaliæ minore, Noakote dicta, terrestris infra arbores, florens et fructigera mense Aprilis.

PLANTA terrestris, omninò lævis, erecta, rigidiuscula, pedalis. RADIX constans *fibris* aliquot cylindricis, rigidis et sublignosis, valdè longis, 6—8- quin 10-pollicaribus, pennam columbinam crassis, glabris, minutìm striatulis, fuscis, indivisis, extremitate inferiore parùm fibrillosis, e basi caulis alternatìm rectè et ferè parallelè descendentibus. CAULIS gracilis, cylindricus, indivisus, calamum scriptorium crassus, indutus vaginis foliorum brevibus, striato-subnervosis, adpressis, ore obliquis, inferioribus demùm nudis. FOLIA numerosa, approximata, undique sparsa et patentia, recurvato-nutantia, graminea, membranacea, plana, integerrima, levitèr undulata, ensiformi-lanceolata, in acumen gracillimum attenuata, deorsùm angustata et acuta, ipsâ basi tamen dilatata, subamplexicaulia et in vaginam desinentia, 6—10-pollicaria, mediò semipollicem lata, suprà atroviridia, nitida, striata, subtùs glauca, 5-nervia, multilineata, nervis gracillimis ad apicem usque excurrentibus. RACEMI plures, axillares foliorum supremorum et terminales, oblongi, multiflori, decurvato-nutantes, rigidi, brevè pedunculati, foliis triplò breviores, 3-pollicares, fructiferi parùm elongati, 5-pollicares, paniculam deflexo-patentem, termi-

---

[*] *Mém. de la Soc. d'Hist. Nat. de Paris*, 1. p. 202.

[†] *Prodr. Fl. Nov. Holl.* 1. *pp.* 309 & 311.

[‡] *Prodr. Fl. Nov. Holl.* 1. *p.* 305.

[§] *Mémoire sur le Canna indica et sur les familles des Balisiers et des Bananiers.*

[||] *Appendix to Denham and Clapperton's Travels, p.* 243.

[¶] *Gen. Remarks on Bot. of Terra Austr. p.* 43.

nalem formantes. Pedunculi levitèr angulati, nudi. Flores parvi et inconspicui, flavi, admodùm fragrantes, pedicellati. Pedicellis breves, suffulti *bracteâ* membranaceâ, lanceolatâ, plicatâ, dorso subcarinatâ, sub fructu elongatâ. Perianthium ovarii apici parùm obliquè impositum, infundibuliformi-patentiusculum, vix duas lineas longum, 6-partitum; *laciniæ* lineares, planiusculæ, cuspidato-acutæ, seriebus duabus alternatìm dispositæ, basi conniventes, apice parùm patentes; *interiores* 3 vix angustiores. Labellum nullum. Stamina 3, quorum 2 *antherifera* stylo supra basin lateralitèr adfixa, eodem parallela, adscendentia. Filamenta brevissima, subulata. Antheræ erectæ, oblongæ, basi obliquè acutæ, filamento ferè duplò longior, sulco medio notatæ, longitudinalitèr dehiscentes, valvulis mòx introrsùm volutis. Stamen *sterile* stylo anticè, inter fertilia insertum, parùm ulteriùs adnatum, planiusculum, obtusum, nudum. Ovarium oblongo-cylindricum, obsoletissimè 3-angulare, utrinque acutum, unguiculare, pedunculo pluriès longius, 3-loculare, polysporum; *ovula* plurima, axi inserta. Stylus teres, rectus, staminibus parùm longior. Stigma convexiusculum, obsoletissimè 3-lobum. Capsula pollicaris, gracilis, fusca, nitida, 3-locularis, seminibus copiosis, minutis, globosis, atris.

This curious plant has been found only at Noakote in Nipal, a small valley distant about one day's journey from Katmandu, and much less elevated, and therefore much warmer, than the great valley. My people brought me fresh specimens in flower and with unripe capsules in April 1821, while I was in that country. The flowers are very fragrant, like those of *Webera corymbosa* of Willdenow.

Mr. Brown, who has favoured me with the highly important observations given above, and to whom I beg to express my warmest thanks, was disposed at first to consider my plant as identical with that discovered by the celebrated Professor Blume on Mount Salak in Java. Subsequent examinations have, however, satisfied him that they are distinct species; a circumstance, indeed, which was anticipated from the great difference of their geographical position. I must therefore request the reader to alter the name of *Apostasia odorata* of Plate 84 to *A. Wallichii*, which Mr. Brown has done me the honour to give to the Nipal plant. The specific character of the Java plant, extracted by permission from the manuscript of this illustrious botanist, I shall here subjoin:

"*Apostasia odorata*, antherarum lobis posticis æqualibus, filamento tertio castrato."—*Brown MSS.*

Apostasia odorata, Blume Bydr. p. 423.

Plate LXXXIV. Fig. 1. Flower. 2. The same dissected. 3. Style and stamens. 4. A flower, with the perianthium expanded, in order to show the internal parts. 5. Nearly ripe capsule divided horizontally. 6. A detached stamen. 7. Pollen. 8. Style, with barren stamen reflected to show the indication of the two cells. 9. Seeds, one of which is divided longitudinally.

APOSTASIA NUDA. Tab. 85.

Antherarum lobis posticis æqualibus, filamento tertio nullo.—*Brown MSS.*

Apostasia nuda, Brown MSS.

Habitat in montibus insulæ Penang, florens Octobri. *Georgius Porter.*

Habitus omninò *Apostasiæ Wallichii*, Brown, sed gracilior et statura elevatior. Omnes partes glaberrimæ. Fibræ radicales numerosiores quàm in illa specie, fibrillosæ et subramulosæ. Caulis strictus, gracilis, pedalis, 1½-pedalis, e basi sæpiùs foliosus, *vaginis* brevibus, nervosis indutus. Folia valdè numerosa et approximata, undiquè erecto-patentia, angusto-linearia, attenuato-acuminatissima, basi contracta iterumque paullò dilatata, plana, 5—6-pollicaria, 5-nervia, lineata, subtùs glauca, suprema breviora. Racemi terminales, pauci, brevè pedunculati, simplices, decurvato-patentes, fructiferi deflexi, folia suprema longitudine æquantes. Pedunculus obsitus *bracteolis* valdè copiosis, subquadrifariè imbricatis, adpressis, lineari-lanceolatis, acuminatis, 3-nerviis, persistentibus. Flores minimi flavi. Ovarium et perianthium ut in altera specie. Stamina 2 prope basin styli inserta. Antheræ magnæ, ovato-subcordatæ, basi æquales. Stamen sterile nullum. Stylus gracilis, stamina longitudine æquans. Stigma obsoletè 3-lobum.

This species differs from the Nipal plant in the absence of the barren stamen, in the posterior lobes of the anthers being equal, and in the bracteated peduncles of the racemes. Its stature is taller and slenderer, the leaves shorter and much narrower.

Plate LXXXV. Fig. 1. Flower. 2. Stamen detached. 3. Pollen. 4 & 5. Different views of the style, with corresponding plans, showing the relative position of the parts of the flower.

Gorachand del.

Printed by Engelmann, Graf Coindet & Co.

M. Gauci lith.

Ruellia Neesiana

84

Apostasia odorata.

Gorachand plant et anal 1–3
C Curtis 4–9 delt

Printed by Engelmann Graf, Coindet & Co.

M Gauci lith

C. Curtis del^t.
Printed by Engelmann Graf Coindet & Co
M. Gauci lith.

Apostasia nuda.

IRIS DECORA. Tab. 86.

Tuberibus gracilibus, fasciculatis, pedunculatis; foliis ensiformi-linearibus, acuminatissimis, plicato-nervosis, longissimis; scapo gracili, paucifloro, levitèr compresso, foliis longiore; spathis remotis, angustis, acuminatis; corollæ tubo longo, gracili; petalis oblongis, retusis, exterioribus cristatis; stigmatibus corollam subæquantibus lanceolatis, acuminatis sublaciniato-serratis.

Habitat in Napaliæ monte Ekdanta et ad Bempedi, florens mense Maii.

Planta 3-pedalis, gracilis, lævis, glaucescens. Radix constans tuberibus pluribus carnosis, fasciculatis, gracilibus, oblongo-cylindricis, utrinquè attenuatis 2-pollicaribus, pedunculo gracili, 2-pollicari sustentis. Folia 2—3-pedalia, ensiformi-linearia, attenuato-acuminatissima, basi parùm contractâ equitantia, vix ad medium lineas 10 lata, gracillimè 5-nervia, mediò profundè canaliculata, lateribus replicatis, atro-viridia, subtùs glaucescentia. Scapus erectus gracilis, glaucus, levitèr compressus, foliis parùm longior, supernè subflexuosus, basi circumdatus fibris densis, brevibus, erectis, aridis. Spathæ lineari-falcatæ, acuminatæ, 2-valves, 3—4-pollicares, membranaceo-marginatæ. Flores pauci, solitarii vel geminati, altero sæpiùs emarcido, dilutissimè cœrulei, purpureo-reticulati, ferè inodori, læves. Tubus gracilis, obsoletè 3-angularis, 2-pollicaris, *ovario* oblongo, 3-angulari, lucido, esulcato, ad latera convexo duplò longior. Petala oblonga, obtusa, retusa, lobis apicis rotundatis, plana, integerrima, recurvata, pollicaria, venis purpurascentibus, numerosis, dichotomis reticulata, desinentia in *ungues* latiusculos, marginatos, canaliculatos, infundibuliformi-conniventes, semipollicares; *exteriora* cristâ luteâ, angustâ, fimbriato-denticulatâ, e medio limbi ad basin unguis decurrente; *interiora* parùm angustiora, nuda. Stigmata erecto-conniventia, petalis interioribus parùm breviora, iisdem concolora, lanceolata, inæqualitèr acutè serrata, sublaciniata, apice profundè biloba, lobis acuminatis, intùs integerrimis et parallelis, sinu angusto, lateribus parùm recurvatis super *antheras* lineares, filamento filiformi, æquanti insidentes. Capsula oblonga, 3-angularis, lateribus convexis, 1½-pollicaris.

This plant and *Iris napalensis* Botan. Reg. v. 10. n. 818. are the only two species of *Iris*, which I have found in Nipal. They belong exclusively to that country, and are quite distinct from the European species. The plant described above is the rarest of the two, blossoming in the hot season; whereas the other kind, which is called by the natives *Gulsojan* and *Gulila*, produces its flowers in the cold weather, about February, and continues in flower until the end of April.

Plate LXXXVI. Fig. 1. Flower dissected.

CORYLUS FEROX. Tab. 87.

Foliis oblongis, valdè acuminatis, stipulis lineari-lanceolatis; nuce compressâ, involucro villoso, bipartito, laciniato-spinosissimo duplò breviore.

Crescit ad cacumen Sheopore montis in Napalia, florens Septembri, fructigera Decembri.

Arbor 20-pedalis. Truncus pedem ad 2 circumferentiâ emetiens, cortice glabriusculo, cinereo. Rami virgati, læves, cylindrici, fusci, calloso-punctati, tenelli sericei. Gemmæ conico-oblongæ, extùs sericeo-villosæ. Folia subbifariè patentia, alterna, oblonga, in acumen longum attenuata, duplicato-serrata, serraturis parvis, acuminatis, basi obtusa, 3—4-pollicaria, utrinquè adpressè pubescentia, suprà atroviridia, obliquè rugosa, subtùs pallida, obliquè et parallelè multinervia, nervis costâque gracilibus, elevatis, villosis. Petiolus vix pollicaris, villosus. Stipulæ lineari-lanceolatæ, acutæ, caducissimæ. Amenta terminalia ramulorum brevium, novellorum, axillarium vel ex vestigiis petiolorum delapsorum, subfasciculata, cylindracea, 2-pollicaria, laxè pendula, mollissimè tomentosa, sericea, cana, demùm flavicantia. Squamæ undiquè imbricatæ, adpressæ, 3-partitæ; *lobi* obovati, cuspidulati, extùs valdè villosi, intùs puberuli, intermedius reliquis latior. Stamina 4, squamis breviora; *filamenta* brevissima; *antheræ* magnæ, oblongæ, fuscæ, loculis discretis, apice pilis canis, brevibus barbatæ. Flores fœminei haud visi. Involucrum *nucis* ovatum, cyathiforme, carnosum, profundè 2-partitum, cano-villosum, fundo glabrum, usque ad medium laciniato-multifidum, lobis ramoso-pinnatis, divaricato-patentibus, in spinas longas, gracillimas, apice fusco-glabras desinentibus; plura ad ramulorum apices coacervata in capitulum 2—3-pollicare, nutans. Nux ovata, compressa, lateribus convexa, obsoletè striata, involucro dimidiò brevior, valdè crassa et dura, lævis, fusca, obtusa cum apicula villosula, basi prominente abrasa. Receptaculum filiforme, compressum, spongiosum, seminis marginem alterum percurrens, apice ovula 2 adfigens, verticem putaminis parùm intrans. Semen omninò ut in *Corylo Avellana*.

The wood of this tree is light, compact, and of a pale colour. The nut is small, and precisely like the common hazel-nut in taste; the shell is exceedingly hard and thick.

Plate LXXXVII. Fig. 1. Male ament. 2. Scale with stamens. 3. The same, seen from behind. 4. Stamen. 5. A bunch of fruits. 6. A fruit detached. 7. The same opened. 8. Involucre. 9. Nut. 10. 11. The same divided transversely and longitudinally. 12. 13. 14. Seed.

OXYSPORA PANICULATA. Tab. 88.

Erecta; foliis subcordato-ovatis, acuminatis, crenulatis, subtùs ramis; petiolis pedunculisque tomentoso-villosis, villis pubescentibus; paniculâ ovatâ, erectâ; connectivo antherarum longiorum obsoletè calcarato; calyce capsulifero subenervio.

Oxyspora paniculata, DeCand. Prodr. vol. 3. p. 123. Ejusd. Melastom. p. 33. tab. iv.

Arthrostemma paniculatum, Don Prodr. Flor. Nepal. p. 222.

Habitat frequentèr in montibus vallis Napaliæ, florens sub pluviis, mensibus Julii—Septembris, fructigera Decembri.

Frutex 2—3- quin 4-pedalis, erecta, trichotomè ramosa. Caulis subcylindricus, brevis, corticè cinereo-obtectus. Rami subquadrangulares, cinerei, calloso-punctati, infernè et ætate glabriusculi, supernè uti ramuli petiolique obtecti et dum juniores quasi barbati tomento copiosissimo, longo, laxo, solubili, stellato, ex cinereo ferrugineo, villis longis, subspongiosis, pubescentibus intermixto. Folia opposita, patentia, approximata, ovata, attenuato-acuminata, margine subrecurvo crenulato-denticulata, basi rotundatâ levitèr retusa, 5—7-pollicaria, aliquando 10-pollicaria, coriacea, suprà atro-viridia, nitida, juxtà nervorum venarumque tractus longitudinalitèr et transversè rugosa, ferè glabra, subtùs grumoso-tomentosa, 7-nervia, nervis densiùs tomentosis, rufescentibus, intermediis crassis, totam paginæ longitudinem percurrentibus, venis inter hos transversis, parallelis, approximatis, prominentibus, venulis interjectis anastomosantibus; *summa paria* et *floralia* pauca, parva, lanceolata. Petioli crassi, teretes, 1½-pollicares, densissimè tomentosi, subbarbati, suprà sulco exarati, basi utrinque tuberculo carnoso, conico muniti, ramum lineâ longiùs et densiùs tomentosâ ambientes. Panicula terminalis magna, sanguinea, levitèr farinoso-tomentosa, pedunculata, ovata, attenuato-acuta, basi et ad divisuras primarias infimas foliorum floralium paribus aliquot aucta, ferè pedalis; *rami* oppositi, patentes, decussati. Pedunculi carnosi, obscurè 4-angulares, colorati, suffulti *bracteis* oppositis, parvis, lineari-subulatis, acutis, basi subtùs gibbosis. Flores ruberrimi, ternati, brevè pedicellati. Calyx oblongus, prismatico-4-gonus, parcè tomentosus, limbo subtùs levissimè constricto, parvo, cyathiformi, patente, 4-lobo: lobis lato-ovatis, acutiusculis, dorso subcarinatis, persistentibus. Petala 4, lævia, nitida, ferè unguicularia, calyce parùm longiora, ovata, obliquè acuta, basi latiusculâ inter lobos calycis inserta, æstivatione in conum cuspidatum convoluta. Stamina 8, quorum 4 longiora petala superantia, 4 iisdem ferè dimidiò breviora. Filamenta subulata, colorata, basi compressiuscula. Antheræ *staminum longiorum*, petalis alternantium, polline vacuæ, violaceæ, lineari-cylindricæ, adscendenti-incurvæ, subnutantes, apice 2-poræ, basi incurvâ, levissimè dilatatâ bilobæ, posticè crispatulæ et ad inferiorem connectivi extremitatem obsoletissimè calcaratæ; *staminum breviorum* polliniferæ, flavæ, suberectæ, istis ferè dimidiò breviores, apice poro communi dehiscentes, basi bilobæ, posticè connectivo deorsùm elongato in calcar breve, descendens, filamento parallelum. Ovarium oblongo-cylindricum, puberulum, 4-loculare, membranulis 4 angustissimis demùm evanidis lateribus inferioris dimidiæ calycis partis accretum, ita ut formentur tubuli 4, angulis hujus correspondentes, antherasque longiores æstivatione deflexas recipientes. Stylus cylindricus, levissimè clavatus, lateralitèr decurvus, stamina breviora subæquans. Stigma convexum, simplex. Capsula ovata, 4-sulcata, levissimè tomentosa, ferè libera, calyce parùm aucto, nutante, subquadrangulari, subenervio, pedicellum æquante, inclusa eodemque tertiò brevior, 4-locularis, apice dehiscens in *valvulas* 4 breves, erectas, apice parùm incurvas. Semina copiosissima, parva, dilutè ferruginea, locula omninò replentia, horizontalia, nucleo cylindraceo, involuto testâ laxâ, triangulari-obovatâ, compressâ, scabridâ, venulosâ, verticis truncatæ angulis oppositis porrectis, altero brevi, lato, altero longo, subulato; undique inserta placentis 4 jugiformibus, apice cuspidato-porrectis, ope membranæ latiusculæ axi capsulæ supernè nudæ, demùm liberæ adfixis, substipitatis.

This is one of the commonest as well as most elegant plants of the tribe of *Melastomaceæ*, inhabiting Nipal, where it grows on almost all the hills surrounding the great valley, delighting in shady and moist situations, and producing its numerous, large and red panicles during the rainy season. I am acquainted with another species of *Oxyspora*, which, although resembling our plant very closely, is quite distinct. It is a native of the hills about Chittagong and Sillet, and may be characterized in the following manner:

Oxyspora vagans: subscandens; ramis nutantibus; foliis subcordato-ovatis, acuminatis, crenulatis, ciliatis, subtùs ramulis petiolisque levitèr tomentoso-pilosis, pilis simplicibus, demùm ferè glabris; paniculâ elongatâ, nutante; connectivo antherarum omnium deorsùm calcarato; calyce capsulifero costato.

Melastoma vagans, Roxb. MSS. Ej. Icon pict. in horto botanico Calcuttæ asservata.

β *cernua*. "*Melastoma cernua*, foliis ovato-lanceolatis, 5-nerviis, glabris; paniculâ terminali, gracili, elongatâ, nutante, pedunculis 4-alatis."—*Roxb. MSS.* Hab. ad Chittagong.

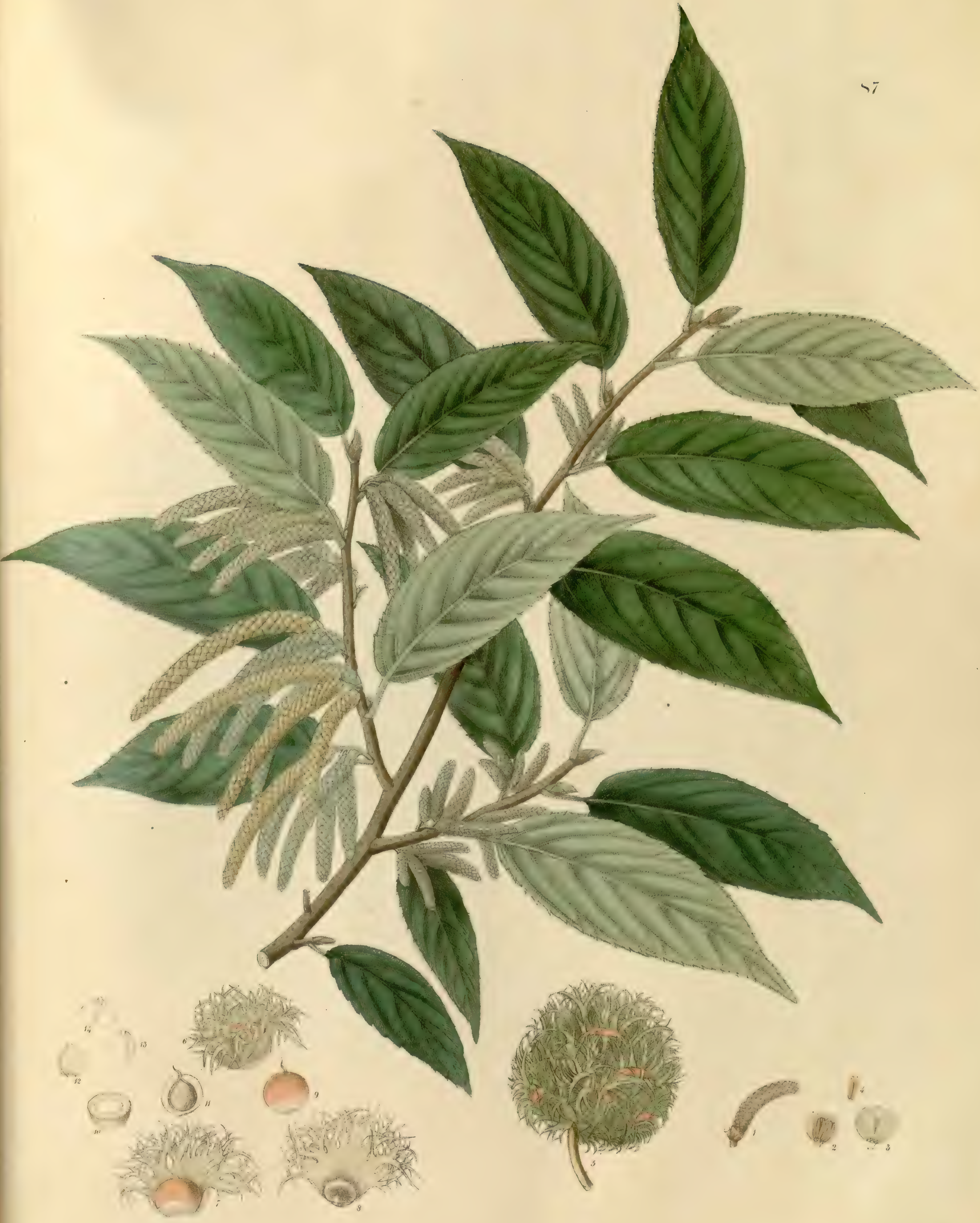
Plate LXXXVIII. Fig. 1. 2. Flower. 3. Flower-bud. 4. Ditto opened. 5. Flower opened. 6. Calyx opened. 7. Ovarium divided horizontally.

Iris decora

Vishnupersaud del

Printed by Engelmann Graf Coindet & Co

M. Gauci lithog

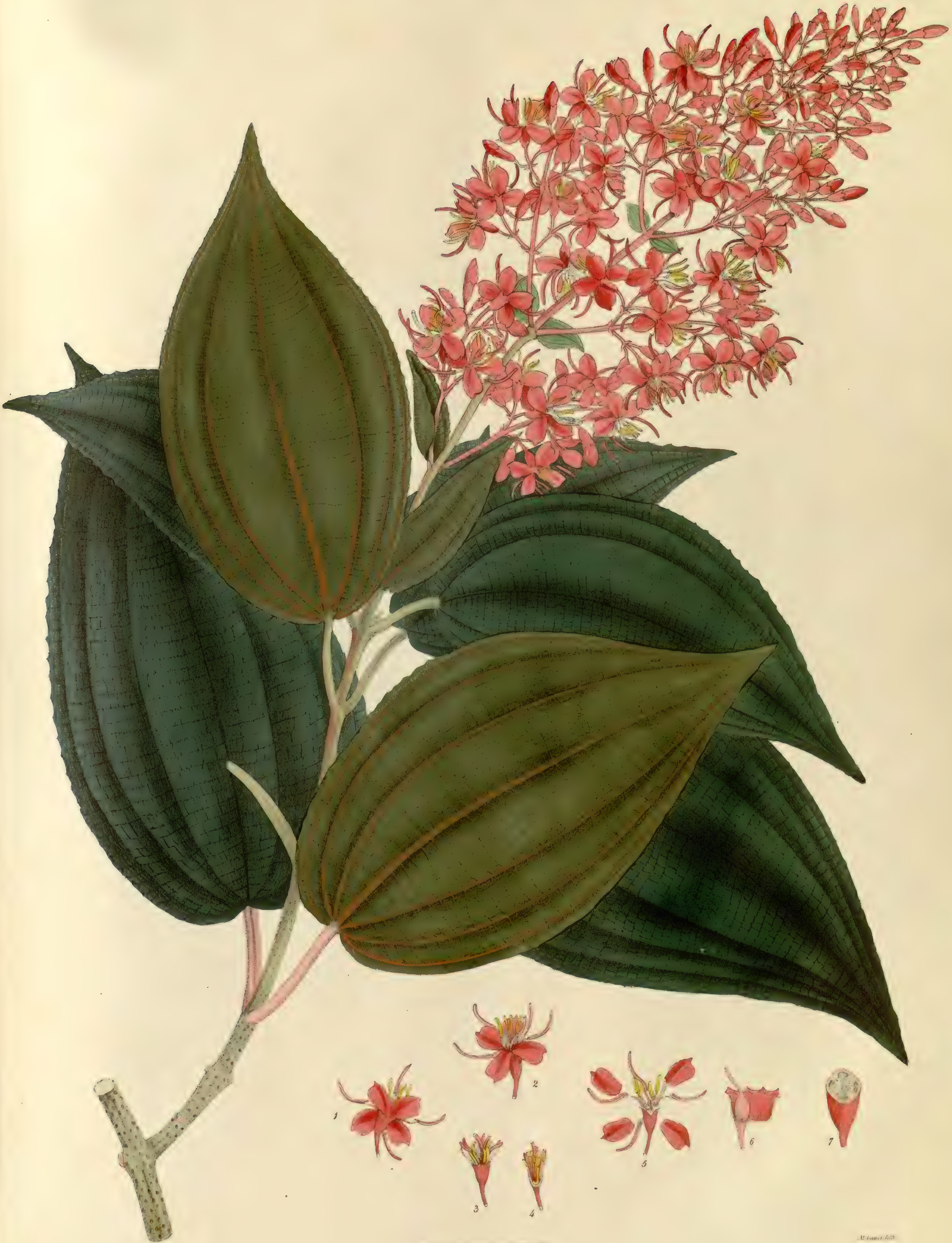

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Gorachand del^{t}

Printed by Engelmann Graf, Coindet & Co

M. Gauci lith

Corylus ferox



Gorachand del.

Printed by Engelmann [illegible] & Co

M. Gauci lith.

Oxyspora paniculata

MYRISTICA SPHÆROCARPA. Tab. 89.

Foliis oblongis, acuminatis, fructibusque lateralibus, fasciculatis, globosis, lævibus; nuclei globosi arillo subcompleto.
Habitat in provincia Martabaniæ, ad vicum Martaban et ad Moalmyne, fructifera Aprili.

Arbor 15-pedalis et ultrà. Rami lineis 2 oppositis, elevatis notati, obsoletè ancipites, uti omnes partes glaberrimi. Folia alterna, subbifariè patentia, approximata, oblonga, attenuata, valdè acuminata, integerrima, basi acuta, coriacea, subcarnosa, 5-pollicaria, suprà saturatè viridia, lucida, subtùs glaucescentia, nervis alternis costâque prominentibus, subavenia. Petiolus brevis, suprà sulcatus. Flores haud visi. Fructus laterales, fasciculati, brevitèr pedunculati, globosi, magnitudinis nucis Juglandis, sordidè lutei, læves, dehiscentes in *valvulas* 2 coriaceas, hemisphæricas, divaricatas, intùs glaberrimas pallidèque purpurascentes. Nucleus globosus, extùs glaucus, intùs ferrugineo-ruminatus, involutus *arillo* coccineo, tenui, carnoso, subcompleto, vertice tantùm obsoletè lobuloso.

Plate LXXXIX. Fig. 1. Fruit unopened. 2. The same, burst open. 3. Nut, with the arillus partly removed. 4. The same, cut horizontally. 5. Nut divided vertically.

MYRISTICA AMYGDALINA. Tab. 90.

Foliis cuneato-oblongis, deorsùm attenuatis, fructibusque lateralibus, ovatis, fasciculatis, nutantibus, lævibus; nuclei oblongi arillo apice laciniato-lacero.

Habitat cum specie præcedente; fructus maturi eodem tempore.

Arbor. Rami teretes, glabri. Folia alterna, approximata, patentia, cuneato-obovata, acuta, deorsùm attenuato-acuta, integerrima, 5-pollicaria, coriacea, lævia, suprà nitida, subtùs pallida, costâ prominulâ, nervis teneribus, subreticulata. Petiolus teres, unguicularis. Flores haud visi. Fructus infra folia ramulorum laterales, fasciculati, nutantes, brevè pedunculati, ovati, hinc sulco exsculpti, e viridi fuscescentes, glauci, magnitudine fructûs Amygdali, dehiscentes in *valvulas* 2 carnosas, crassiusculas. Nucleus oblongo-cylindraceus, 10 lineas longus, absque odore vel sapore, extùs cinerascens, reticulatus, intùs valdè ruminatus, indutus *arillo* aurantiaco, tenui, carnoso, vertice lacerato, lobis inæqualibus, angustis, linearibus, imbricantibus.

Both this and the preceding species were found in fruit only. The fleshy covering of *Myristica amygdalina* has a strong acid and somewhat astringent taste, which is probably the case also with all the other species of the genus. Both the mace and the nut are almost entirely destitute of any aromatic flavour.

Plate XC. Fig. 1. Fruit before bursting. 2. The same, with the outer covering half removed. 3. The same after bursting, one of the valves removed. 4. Nut, with the arillus opened. 5. The same, divided horizontally. 6. Nut. 7. The same, divided perpendicularly. 8. Embryo.

PIPER RIBESIOIDES. Tab. 91.

Fruticosum, scandens, læve; foliis ovato-oblongis, cordatis, acuminatis, coriaceis; baccis longè pedunculatis, digestis in racemos oblongos, geminatos, axillares, folio breviores.

Habitat in sylva montis Chappedong oræ Tenasserim, et ad ripam fluminis Attran in Martabania; fructifera Februario.

Frutex maximus super arborum truncis ramisque altissimè radicans. Rami longi, radicantes, cylindrici, pallidi, supernè liberi, nutantes, graciles, compressiusculi, vix puberuli. Folia bifariè patentia, alterna, ovato-oblonga, attenuato-acuminata, integerrima, levitèr repanda, marginibus mediò plùs minùsve curva, basi parùm contractâ profundè cordata, lobis magnis, rotundatis, subparallelis; valdè coriacea, firma, lævia, glauca, lætè viridia, suprà bullata, subtùs lacunosa, 9-nervia, nervis elevatis, intermediis 3 basi longè unitis, grossè reticulato-venosa; magnitudine in eodem ramo admodùm variabilia, inferiora palmaria, pedalia, quin ultrà, superiora sensìm minora; summa lanceolato-cordata, 3-pollicaria. Petioli crassi, teretes, suprà angustè sulcati, foliis multoties breviores, inferiores 2-pollicares, summi unguiculares. Inflorescentia haud visa. Racemi fructiferi magni, axillares, geminati, oblongo-cylindrici, digitum medium crassi, foliis breviores, 3—5-pollicares, brevè pedunculati. Pedunculus $\frac{1}{2}$-pollicaris, teres, puberulus; *rachis* carnosa, cylindrica, foveolata. Baccæ valdè numerosæ et approximatæ, undique sparsæ, patentissimæ, globosæ, læves, vestigio stigmatum 2 vel 4 coronatæ, e viridi flavæ, plenâ maturitate aurantiacæ, diametro baccæ ribesiæ magnæ, pluribus minutis, abortivis, subsessilibus intermixtæ, insidentes *pedicello* longo, tereti-clavato, $\frac{1}{2}$-unguiculari, basi rachi subimmerso suffultoque *bracteolâ* brevissimâ, ovatâ, obtusâ, ciliatâ, obscurè bilobâ. Semen depresso-globosum, glabrum, venosum, basi planum.

This is a very remarkable, gigantic species of Pepper. The leaves are ovate-cordate and coriaceous, varying exceedingly in size, even on one and the same branch; the lowermost being from eight to twelve and even fourteen inches long, while the uppermost scarcely measure three inches in length. The berries are large, of a beautiful greenish-yellow colour, becoming deep orange when quite ripe, supported on long pedicels. They possess a very pleasantly aromatic and pungent taste.

Plate XCI. Fig. 1. Berry. 2. The same, divided transversely. 3. 4. Seed. 5. One of the upper leaves.

JUSTICIA PALATIFERA. Tab. 92.

Fruticosa; foliis oblongis, acuminatis, integerrimis, glabris, brevè petiolatis, summis sublineari-oblongis; racemis simplicibus, terminalibus, paniculatis, secundis, subrecurvatis, nudis; floribus fasciculatis, bracteis subulatis calycisque laciniis linearibus, glanduloso-pubescentibus; tubo corollæ elongato, gracillimo, limbo bilabiato, labii inferioris laciniâ intermediâ deflexâ, suprà gibboso-sulcatâ; loculis antherarum subæqualibus.

Habitat in montibus prope Sillet, ubi detexit Francis De Silva, plantarum collector, indèque in Hortum Botanicum Calcuttæ anno 1825 introduxit. Floret Martio et Aprili; fructus maturescunt Majo.

Caulis fruticosus, erectus, gracilis, 2-pedalis, pubescens, simplex, vel parcè ramulosus, purpurascens. Folia opposita, patentia, interstitiis longiora, lanceolato-oblonga, acuminata, integerrima, vel obsoletè crenulata, parùm undulata, basi acuta, 5-pollicaria, coriacea, suprà saturatè viridia, opaca, glaberrima, subtùs costâ elevatâ, pubescente, nervis suboppositis, arcuatis; *summa* lineari-oblonga, 2—3-pollicaria, valdè approximata. Petiolus $\frac{1}{2}$-pollicaris, rufescens, suprà planus, subtùs convexus, pubescens. Racemi terminales et ex axillis supremis oppositi, simplices, longiusculi, levitèr recurvati, brevè pedunculati, secundi, 3—5-pollicares. Pedunculi cylindrici, pedicelli, bracteæ calycesque obsiti pubescentiâ copiosâ, glanduloso-capitellatâ. Flores magni, dilutè rosei, erecti, subsessiles, 3—5-dispositi in fasciculos subapproximatos, secundos, suffultos bracteolis aliquot lineari-subulatis, subcarnosis. Pedicelli brevissimi, carnosi, cylindrici, tumidi. Calyx oblongus, 3-linearis, profundè divisus in *lacinias* 5 lineares, obtusas, ciliatas, parallelas. Corollæ *tubus* gracillimus, subfiliformis, pubescens, $1\frac{1}{2}$- vel 2-pollicaris, apice parùm dilatatus; *limbus* patens, bilabiatus, tubo ferè tertio brevior: *labium superius* 2-fidum, adscendens, lobis oblongis, obtusis, parallelis; *inferius* descendens, duplò ferè latius, 3-fidum, lobi laterales istis labii superioris similes, intermedius major, subdeflexus, ovatus, purpureo-marginatus, versus basin suprà convexus et elevatus in palatum sulcato-retusum, flavum, nigro-punctatum, subtùs concavus; *faux* pervia. Filamenta brevia. Antheræ exsertæ, levitèr divergentes, loculis ferè parallelis, subdistantibus. Stylus filiformis. Stigma obsoletè 2-lobum. Capsula clavata, 2-sperma, unguiculata, pubescens, pollicaris, ungue calycem adpressum æquante.

Plate XCII. Fig. 1. 2. Calyx and corolla opened. 3. A detached stamen.

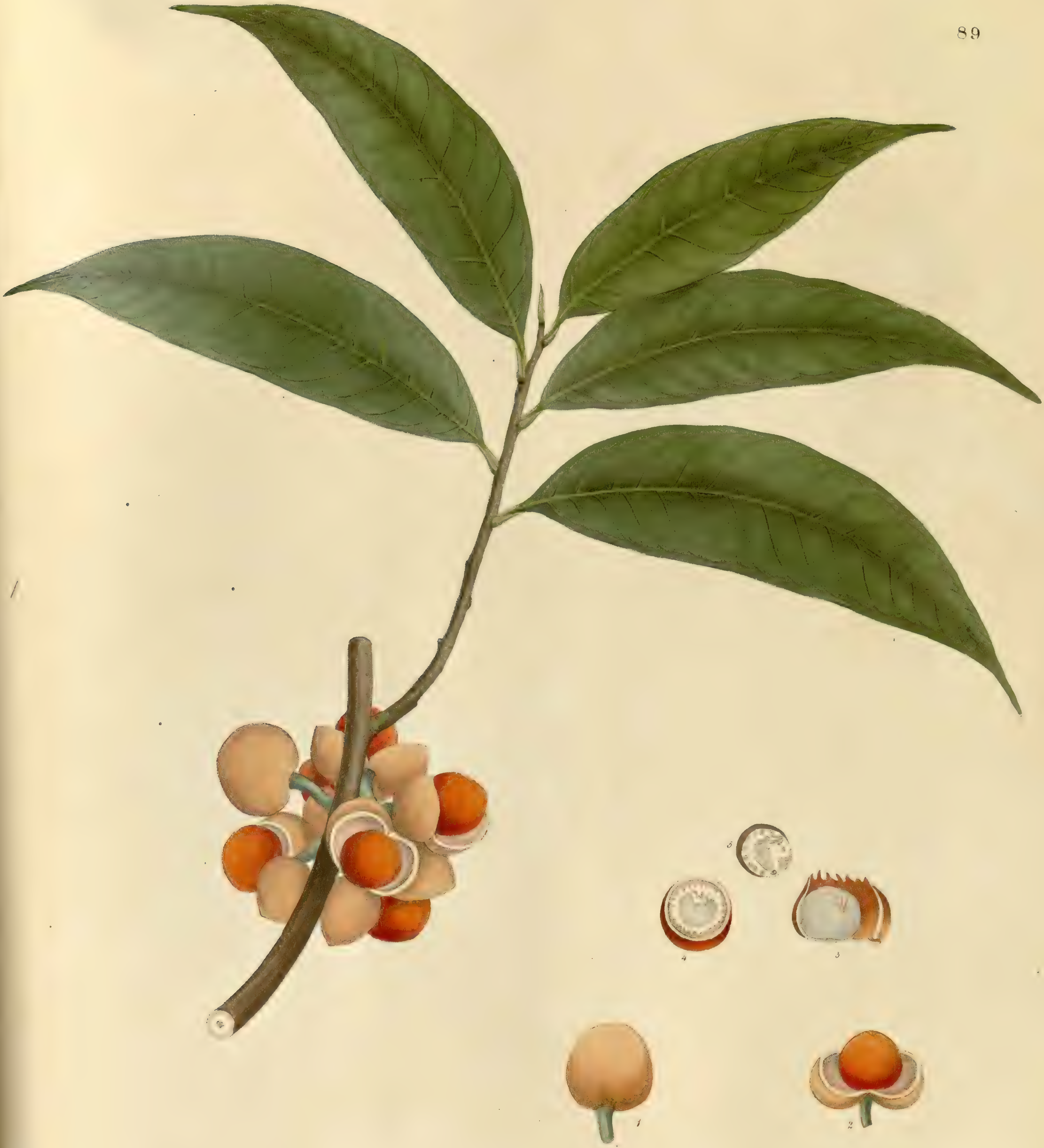
JUSTICIA VENTRICOSA. Tab. 93.

Fruticosa; foliis oblongis, obtusè acuminatis, lucidis, brevè petiolatis; spicis axillaribus terminalibusque, solitariis, erectis, subsessilibus, oblongo-cylindricis, bracteis foliaceis, quadrifariè imbricantibus, ventricosis, orbiculatis, coloratis; limbo corollæ ringentis labio superiore oblongo, cucullato, inferiore ovato, 3-dentato, suprà bullato-convexo; staminibus 2; antheræ loculis subinæqualibus, ovatis, deorsùm acutis et divergentibus.

Justicia ventricosa, Wall. in Bot. Mag. vol. 54. n. 2766.

Habitat in China. In Hortum Botanicum Calcuttæ misit Dom. J. Reeves anno 1820. Floret mensibus Decembris—Februarii; fructus nondum producti sunt. In provincia Martabaniæ ad ripas fluminis Saluen observavi florentem Aprili 1827.

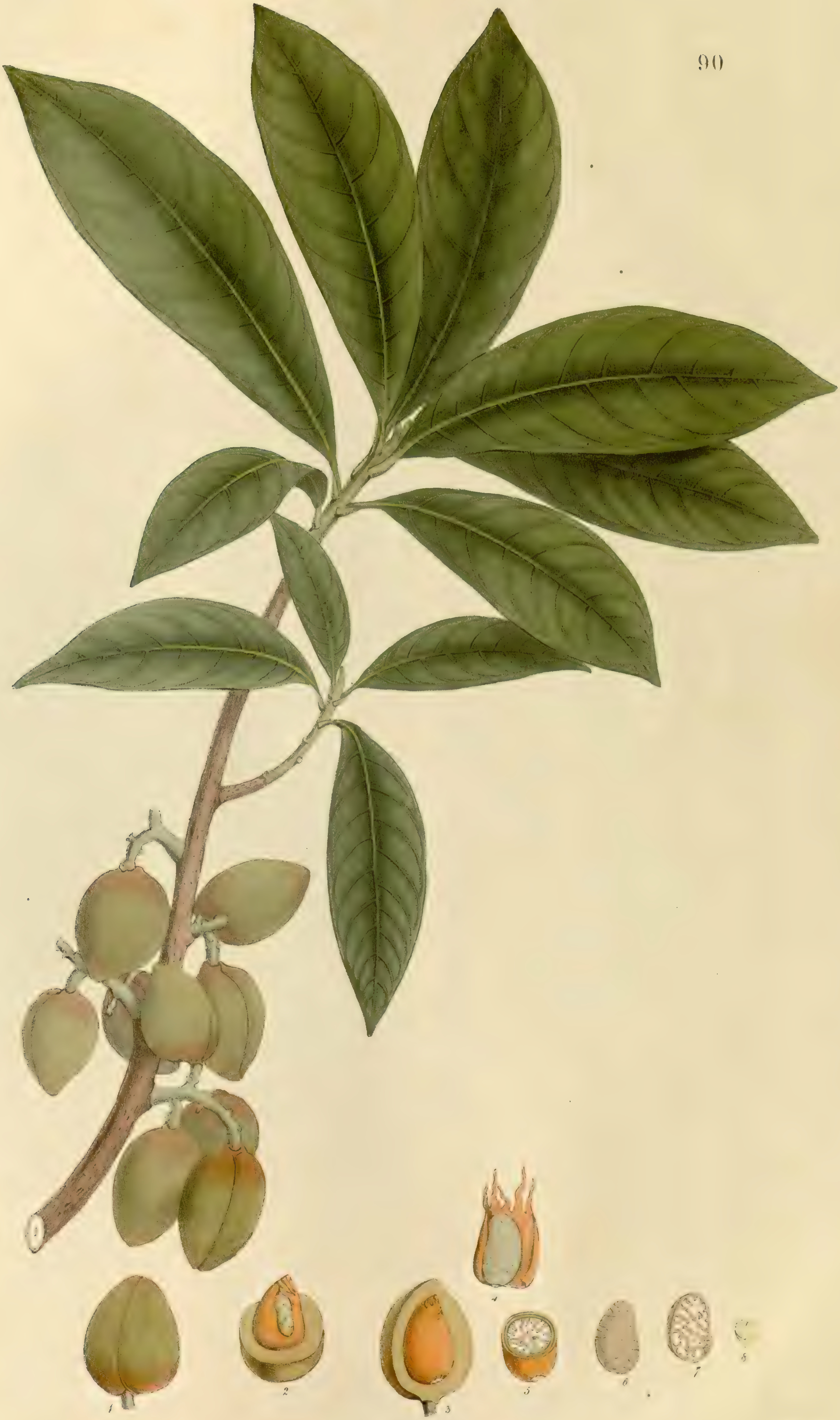
Frutex magnus, lævis, densè paniculato-ramosus, 3—5-pedalis. Rami cylindrici, crassi, tumido-articulati, suberecti. Folia valdè copiosa, patentia, approximata, brevè petiolata, oblonga, vel acuminata, deorsùm attenuata in basin auctam, obsoletè crenulata, 5—8-pollicaria, carnosa, subfragilia, suprà atroviridia, lucida, costâ gracili nervisque suboppositis parùm elevatis, subtùs pallida, subenervia, ad lucem visa lineolis minutissimis, cuneiformibus, pellucidis, vagis densissimè notata. Petiolus $\frac{1}{2}$-pollicaris, suprà planus. Spicæ terminales axillaresque, solitariæ, oblongæ, brevè pedunculatæ, erectæ, obtusæ, digitum medium crassæ, pollices 4 longæ, foliis breviores, obsoletissimè quadrangulares, quadrifariè imbricatæ *bracteis* magnis, oppositis, orbiculatis, cuspidato-acutis, ventricoso-concavis, dorso convexis, pollicaribus, reticulato-venosis, e viridi fuscescentibus, pubescenti-ciliatis, 3—4-floris, adjectis sæpè rudimentis florum aliquot.



Vishnupersaud del^t
Printed by Engelmann, Graf, Coindet & Co
M Gauci lith

Myristica sphærocarpa

90



Printed by Engelmann Graf Coindet & C°

Myristica amygdalina

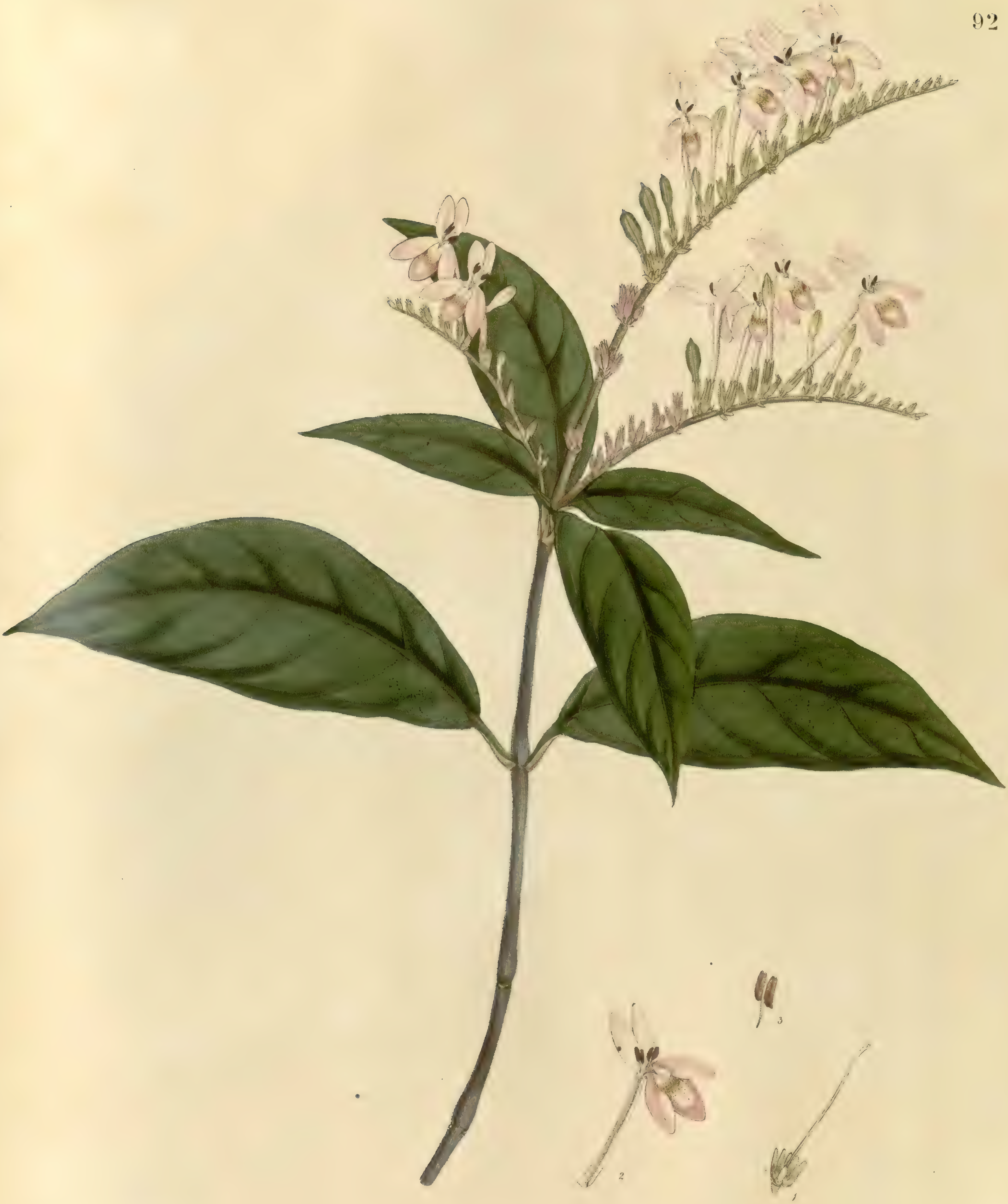
91

Piper ribesioides.

Vishnupersaud del.ᵗ

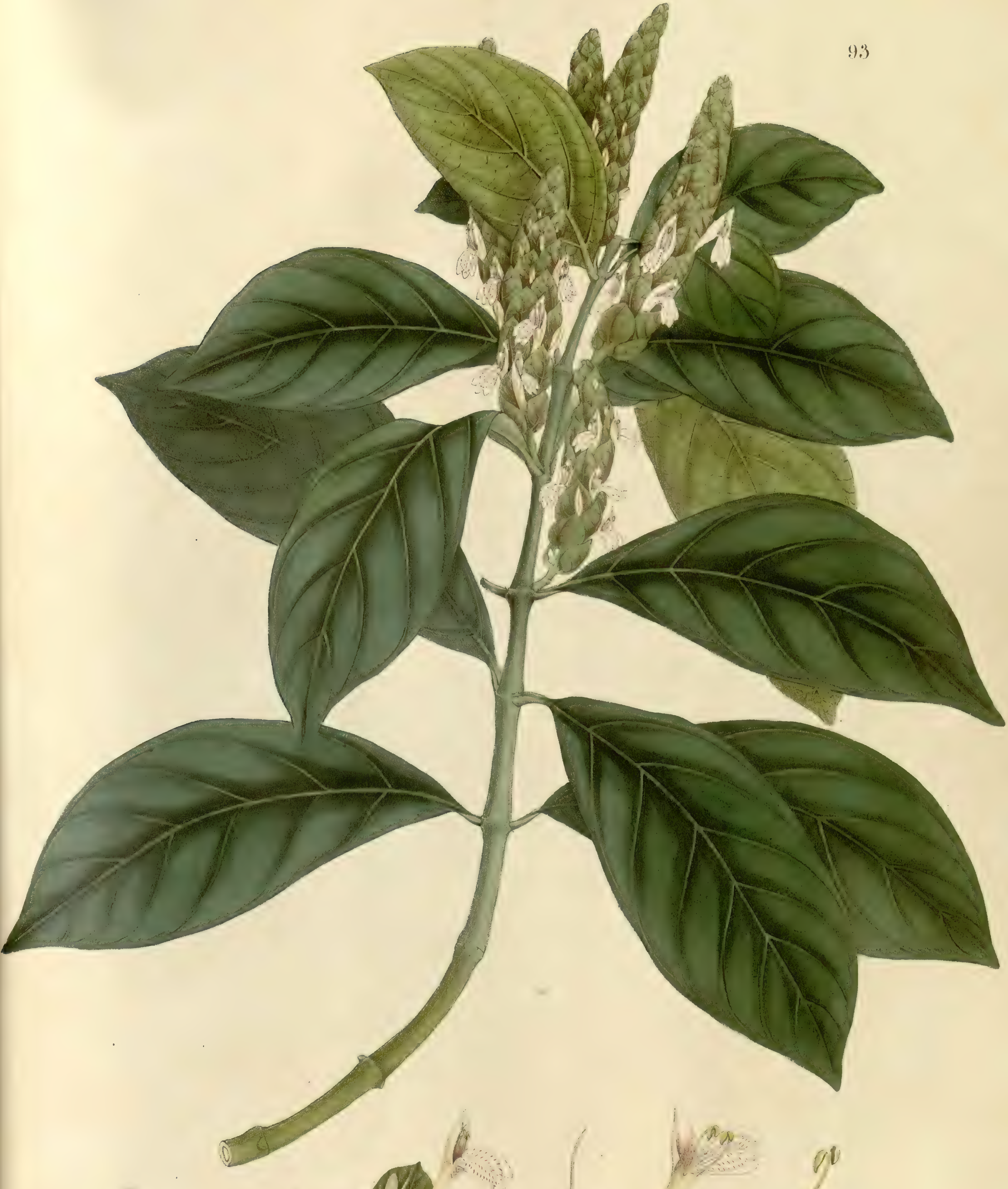
Printed by Engelmann Graf, Condet &c

[illegible] Gauci [illegible]



Vishnupersaud delᵗ
Printed by Engelmann Graf, Coindet & Co
M Gauci lith

Justicia palatifera



Gorachand del^t Printed by Engelmann, Graf, Coindet & Co. M. Gauci lith

Justicia ventricosa

FLORES albi, purpureo-punctulati, majusculi, suffulti *pedicellis* brevissimis, crassis, basi *bracteolis* 2 oppositis, subulatis, puberulis. CALYX brevis, pubescens, subcarnosus; laciniæ lineari-acuminatæ. COROLLÆ extùs pubescentis *tubus* cylindricus, flavescens, bracteam exteriorem vix excedens; *limbus* exsertus, 2-labiatus, ringens, tubum longitudine æquans; *labium superius* rectum, oblongum, cucullato-concavum, apice acutâ obsoletè 2-denticulatum; *inferius* recurvato-patens, ovatum, 3-dentatum, dentibus ovatis, obtusis, suprà convexum, lineolis purpureis, decussantibus reticulatum, sulcoque longitudinali mediò notatum, subtùs concavum; *faux* pervia. STAMINA 2 intra labium corollæ superius subrecondita, denique lateralitèr subdeflexa; *filamenta* pubescentia, filiformia; *antheræ* sagittato-ovatæ, loculis subinæqualibus, obtusis, deorsùm acutis et divergentibus.

This is a very large and handsome species, remarkable on account of the dark-green, tough and fleshy leaves, and the large, foliaceous, ventricose bracteas of the spikes. I am unable to discover any difference between the plants introduced into the Calcutta Garden from China, and those which I found in Martaban.

Plate XCIII. Fig. 1. A bractea with its fascicle of flowers. 2. Calyx. 3. Corolla. 4. Stamen.

DESMODIUM PENDULUM. Tab. 94.

ERECTUM, fruticosum, virgatum, ramulis villosis; foliis 3-foliolatis, foliolis cuneato-oblongis, obtusis, cuspidulatis, subtùs multinervosis, villosis; stipulis bracteisque magnis, aridis, membranaceis, aristato-acuminatis; racemis solitariis, terminalibus, pendulis, attenuatis; floribus geminatis; leguminibus compressis, hinc moniliformibus, 4-spermis; articulis gibboso-reniformibus, infimo stipitato.

Habitat in montibus valli Napaliæ confinibus, florens sub pluviis, fructiferum Octobri; indè in Hortum Calcuttensem introductum. In montibus Sillet confinibus legit F. De Silva.

FRUTEX erectus, ramosus, 3—4-pedalis, patens. RAMI virgati, teretes, induti cortice brunneo, glabro; *juniores* gracillimi, pilis copiosis, canis, longis obtecti. FOLIA alterna, patentia, brevè petiolata, trifoliolata. PETIOLUS *communis* vix pollicaris, gracilis, pilosulus, suprà planus; *partiales* brevissimi, cylindrici, villosi. FOLIOLA oblongo-lanceolata, marginibus parallelis, nunc cuneato-lanceolata, obtusa cum cuspidula minuta, lateralia pollicaria vel sesquipollicaria, intermedium duplò majus, marginibus sæpiùs curvis; suprà saturatè viridia, nitida, glabra, subtùs villis copiosis, adpressis cana, nervis plurimis, obliquis, costâque gracillimis, venis transversis, capillaceis, approximatissimis, parallelis. STIPULÆ axillares, oppositæ, erectæ, membranaceæ, aridæ, lanceolatæ, acuminatissimæ, lineatæ, fuscæ, ciliatæ, glabræ, unguiculares, dimidium petioli æquantes; *stipellæ* tenerrimæ, lineari-filiformes, petiolulis sublongiores. RACEMUS terminalis ramorum ramulorumque, gracilis, cylindricus, attenuatus, nutans, demùm pendulus, 5—7-pollicaris, basi pollicem transversum emetiens, brevè pedunculatus, constans *floribus* geminatis, patentibus, violaceis; ante expansionem cylindraceo-imbricatus. PEDUNCULUS *communis* brevis *rachis*que gracilis cano-villosi; *partiales* capillares, lineas 4 longi, villosi, apice articulati, suffulti *bracteâ* magnâ, unguiculari, lanceolatâ, caudato-acuminatâ, concaviusculâ, cano-barbatâ, deciduâ. CALYX urceolatus, 4-fidus, membranaceus, pilosulus; *laciniæ* lato-lanceolatæ, acutæ, suprema reliquis major. COROLLÆ *vexillum* subrotundum, retusum, basi suprà maculis 2 parvis, oblongis, parallelis, viridescentibus; *alæ* oblongæ *carina*que obtusa brevi-unguiculatæ. LEGUMEN gracile, pedicellatum, pilosulum, pollicare, compressum, hinc moniliformi-articulatum, 3—4-spermum; *articulis* reniformibus, utrinque acutis, margine altero gibboso-convexo, altero semilunari. SEMINA reniformia, fusca, parva.

Plate XCIV. Fig. 1. Calyx, with the articulated pedicel detached. 2. Flower dissected. 3. Alæ and carina.

BIGNONIA MULTIJUGA. Tab. 95, 96.

ERECTA, arborea; foliis impari-pinnatis, multijugis, pinnis dimidiatò ovato-cordatis, acuminatis, integerrimis; floribus paniculatis; capsulis planis, lanceolatis, membranaceo-marginatis.

Habitat in montibus Sillet vicinis, florens Novembri—Januario, fructifera mensibus Martii et Aprilis; indè in Hortum Calcuttensem introduxit M. R. Smith anno 1818. Etiam in insula Penang? b. *Gul. Jack.*

ARBOR magna, umbrosa. RAMULI valdè crassi, calloso-punctati. FOLIA maxima, patentia, opposita, impari-pinnata, 6—12-juga, 2—3-pedalia, glaberrima, brevè petiolata. PINNÆ oppositæ, ovato-oblongæ, acuminatæ, integerrimæ, repandæ, basi valdè inæquali, hinc angustè cuneatâ, illinc latâ et rotundatâ subsemicordatæ, brevè petiolatæ, coriaceæ, suprà nitidæ, levitèr rugosæ, subtùs nervoso-venosæ, reticulatæ; infimæ ferè pedales, exteriores sensìm minores, terminalis impar proximis parùm major, basi æquali acuta, 5-pollicaris.

Petiolus *communis* crassissimus, subcylindricus, basi valdè tumidus, 6-pollicaris, abiens in rachin crassam, subtetragonam, suprà margine elevato carinatam; *partiales* vix ½-unguiculares, sulcati. Panicula terminalis, maxima, ovata, attenuata, erecta, 4-pedalis, ramificationibus appositis, decussanti-patentissimis, bìs tèrve trichotomis, carnosis et crassis, cylindricis, calloso-punctatis. Bracteæ infrà divisuris, oppositæ, patentes, lineari-lanceolatæ, acuminatæ. Flores maximi, ferè 3-pollicares, ternati, brevè pedicellati, sordidè flavi, intùs purpurei, odorem saponaceum, fortem spargentes. Calyx oblongo-prismaticus, 5-gonus, flavicans, 1½-pollicaris, coriaceus, lævis, basi obtusus, ore diviso in *dentes* 5, lato-ovatos, acutos, cuspidatos, rectos. Corolla campanulata, coriacea, extùs densè obsita villis longis, mollissimis, patulis, hyalinis; *tubus* basi lato-cylindricâ calyce brevior, mox dilatato-campanulatus, dorso latissimo, planiusculo, densiùs villoso; *limbus* patentissimus, demùm recurvus, tubo dimidio brevior, ferè æqualitèr 5-lobus; *lobi* subrotundi, crenulati, obtusi, basi parùm contractâ subdistantes, suprà sulcati, ferè pollicares; superiores paulò majores; *faux* magna, hians. Stamina 4, didynama, distantia, glabra; *filamenta* crassa, cylindrica; *antheræ* in fauce distantes, loculis divaricatis. Stamen *quintum sterile*, fertilibus parùm brevius, filamento filiformi, antherâ nullâ. Ovarium oblongo-cylindraceum, læve, *disco* insidens carnoso, convexo, integro, albo. Stylus crassus, teres. Stigma clavatum, bilobum, obtusum. Capsula plana, lanceolata, fusca, glabra, 12—14-pollicaris, acumine brevi terminata, extrorsùm digitos 3 vel 4 lata, indè attenuata in basin acutam, circumdatam calyce emarcido, immutato, sæpiùs soluto et annulari, medio longitudinalitèr prominens et convexa, pollicem ferè crassa, sulcoque lato, obsoleto utrinque notata, circumdata margine membranaceo, arido, compresso, latissimo, subrepando, deorsùm sensìm angustiore adque ipsam basin obliterata; 2-locularis, 2-valvis. Valvulæ planæ, subalatæ, medio extùs longitudinalitèr convexæ, intùs concavæ pallidèque ferrugineæ. Dissepimentum contrarium, semipollicem latum, oblongum, rostrato-acuminatum, maturitate omninò solutum et liberum, marginibus dilatato-incrassatis, rectis, parallelis, crustaceum, intùs atrum, fracturâ compactâ et lucidâ. Semina perquàm numerosa, plana, lateribus dissepimenti parallela, alternatìm seriebus 2 stratisque circitèr 12 ordinata, suborbiculato-reniformia, unguicularia, salvâ basi alata, pollicaria; *ala* tenuissima, membranacea, utrinque producta, obtusa, sericeo-nitens. Embryo magnus, *cotyledonibus* reniformi-obcordatis, *radiculâ* gracili, elongatâ, centrifugâ.

Plate XLV. A flowering branch on a reduced scale.

Plate XCVI. Fig. 1. A pair of leaflets. 2. A flower before expansion of the corolla. 3. Calyx opened. 4. Corolla opened. 5. Capsule. 6. A transverse section of the same. 7. Seed. 8. Seed, cut longitudinally. 9. Seed, with one of the sides removed, showing the position of the embryo. 10. Embryo. All the parts of their natural size.

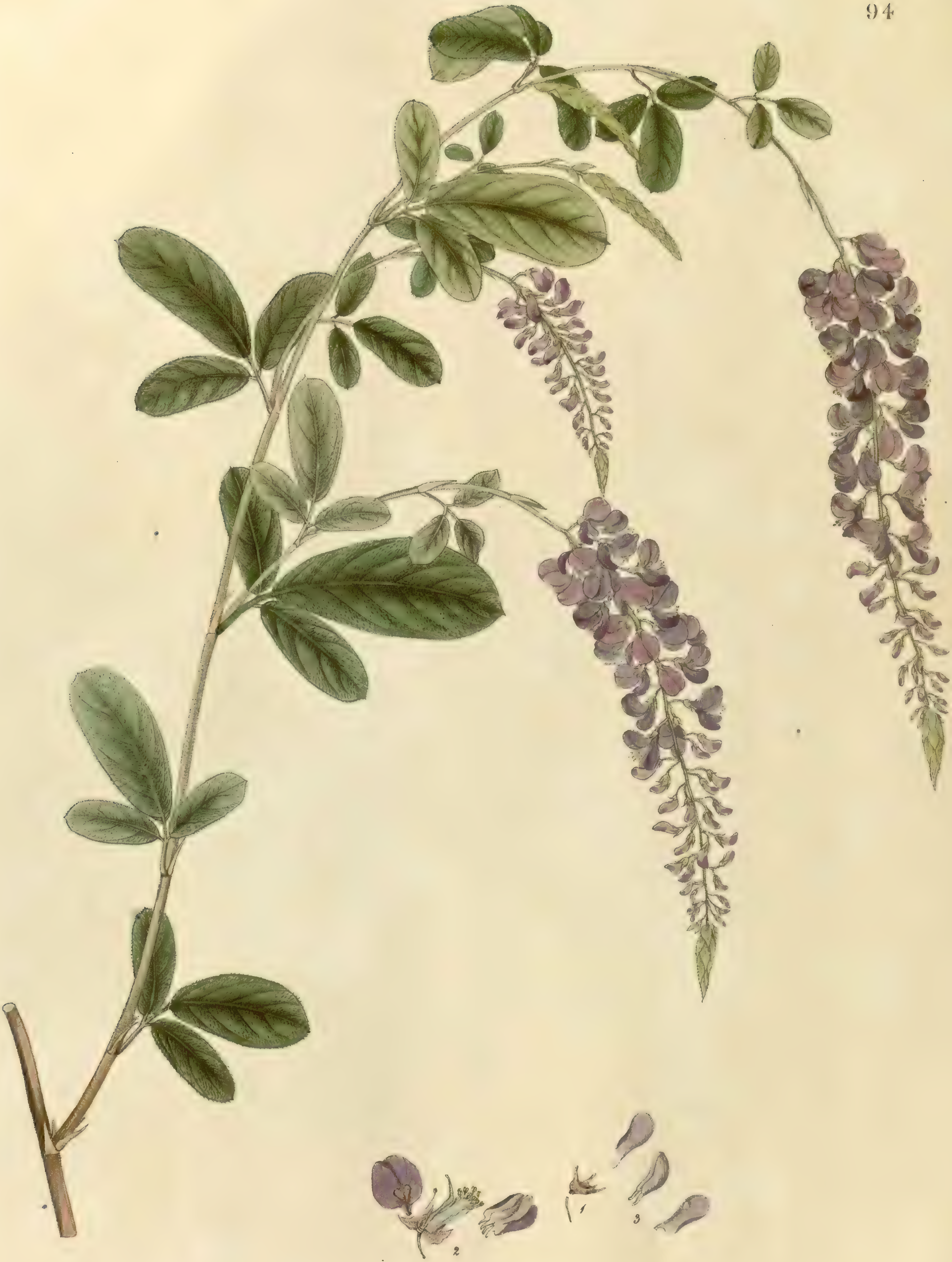
BEGONIA PEDUNCULOSA. Tab. 97.

Herba carnosa, villosula, erecta; radice tuberosâ; foliis falcato-oblongis, semicordatis, grossè duplicato-dentatis; paniculâ terminali, dichotomâ; floribus longissimè pedunculatis, stylis 3, stigmatibus semilunari-reniformibus; capsulæ alis lateralibus angustis, acutangulis, tertiâ oblongâ, porrecto-elongatâ.

Habitat in montibus prope Sillet, supra saxa, florens sub pluviis, mensibus Junii—Septembris, fructifera Septembri et Octobri. In Hortum Botanicum Calcuttæ anno 1817 introduxit M. R. Smith.

Planta erecta, debilis, gracilis, carnosa, pedalis, rufo-colorata, ramulosa, conspersa, pilis copiosis, hyalinis, articulatis, brevibus. Radix constans tuberibus aliquot carnosis, pallidis, globosis, inæqualibus, magnitudine nucis avellanæ vel infrà, intùs mucilaginosis; fibrillis brevibus, capillaribus, densis. Caulis teres, flexuosus, rufo-sanguineus, supernè emittens *ramulos* paucos, simplices, tenerrimos, flexuosos. Folia bifariè alterna, petiolata, patentia, approximata, falcato-oblonga, attenuato-acuta, inæqualitèr duplicato-dentata, dentibus setosis; valdè obliqua, basi dimidiato-cordata, lobo altero rotundato, obtuso, altero angusto, subobliterato, tenuia et submembranacea, 2—3-pollicaria, suprà rugosa, villosula, ad discum plagâ oblongâ, sinuatâ, sanguineâ notata, subtùs glabriora, nervoso-venosa, juxta nervos tantùm villosa; *floralia* omninò sanguinea, parva, linearia, dentata, subsessilia. Petioli graciles, teretes, internodia æquantes, pollicares. Stipulæ parvæ, oppositæ, triangulari-lanceolatæ, acutæ, membranaceæ, suberectæ, ciliatæ, persistentes. Panicula terminalis caulis ramorumque, magna, rotundato-ovata, patens, multiflora, bìs tèrve dichotoma. Pedunculi teretes, semi-pollicares, villosuli, colorati. Bracteæ ad divisuras et ad basin pedicellorum oppositæ, ovatæ, acutæ, villosulæ, patentiusculæ, stipulis parùm majores, persistentes. Flores ratione plantæ magni, rubri, geminati, glabri, suffulti *pedicellis* longis, filiformibus, pallidis, glabris, pedunculis duplò longioribus, 1½-pollicaribus. Masculi: Petala 4, stellatìm patentia, obtusa, lineas 4 longa; exteriora ovata, interiora angustiora, oblonga. Filamenta carnosa, salvo apice brevi, capillaceo connata in conum parvum. Antheræ ovatæ, complanatæ, erectæ, utrinque longitudinalitèr dehiscentes. Fœminei: Petala 5, patentia, istis masculi floris parùm minora, cuneato-oblonga. Styli 3, carnosi, lutei, intùs plani, parùm divergentes, petalis triplò breviores. Stigmata semilunato-arcuata, papillosa. Capsula (ferè matura) lævis, unguicularis, fusca, petalis emarcidis coronata, oblongo-triangularis, parùm ventricosa, 3-alata; alis reticulatis, lateralibus angustis, subacutangulis; tertiâ oblongo-lanceolatâ, obtusâ, valdè elongatâ, rectè divergente, apice vix supra verticem capsulæ porrecto.

Plate XCVII. Fig. 1. 2. Male flower. 3. 4. Female flowers with almost ripe capsules.



Gorachand del^t

Printed by Engelmann, Graf, Coindet & Co

M. Gaua lith

Desmodium pendulum

Vishnupersaud del^t.

Printed by Engelmann, Graf Coindet & Co.

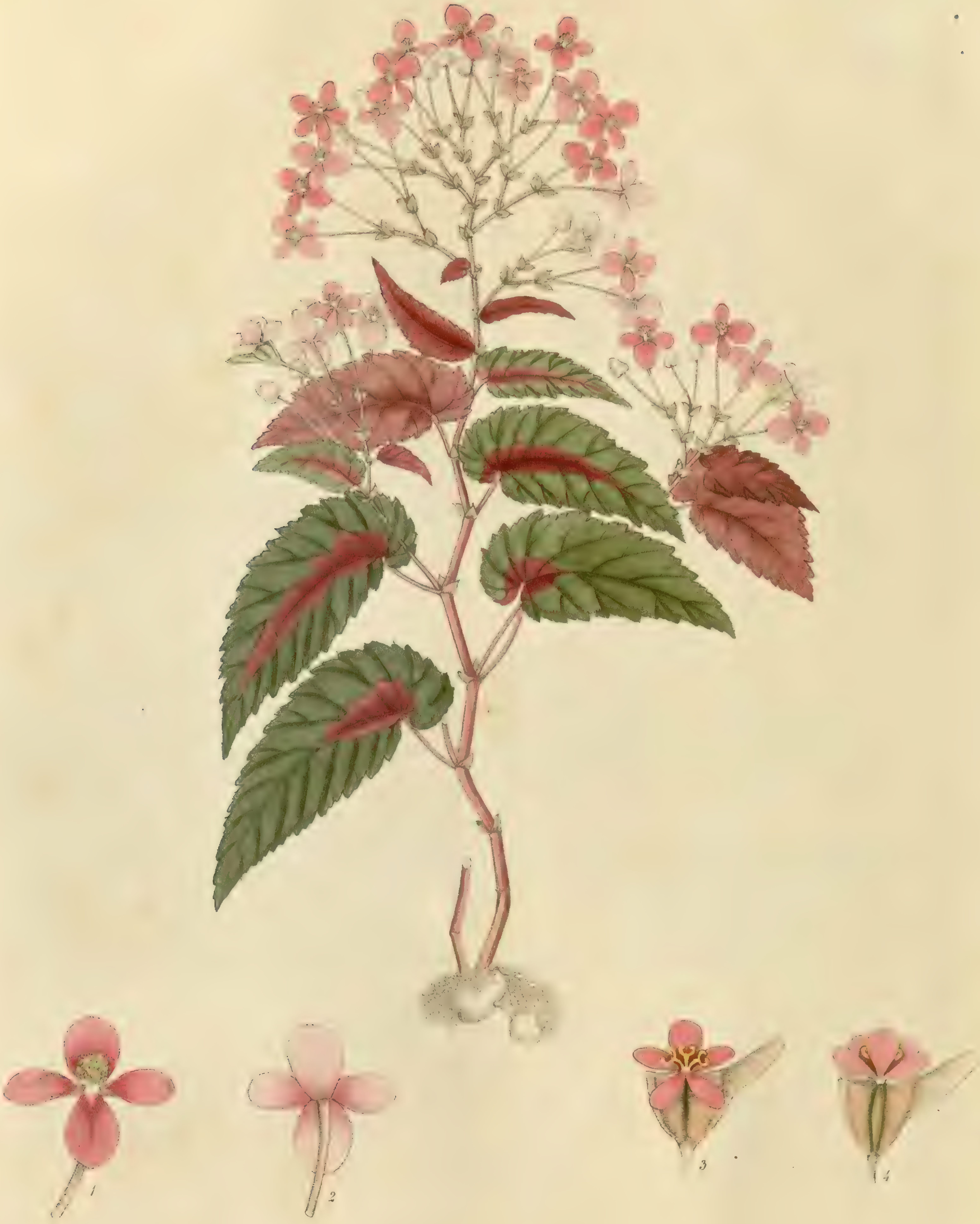
M. Gaua lith

Bignonia multijuga

1
2
3
4
5
6
7
8
9
10

Bignonia multijuga

Printed by Engelmann, Graf Coindet & Co.



Vishnupersaud del.
Printed by Engelmann, Graf, Coindet & Co.
M. Gauci lith

Begonia pedunculosa.

CLEMATIS GRATA. Tab. 98.

Frutex scandens, ramosissimus, cano-villosus; foliis subbiternatis, foliolis ovato-cordatis, acuminatis, inciso-serratis, trilobis, subtùs densè villosis; floribus axillaribus, paniculatis, nudis, pedunculis trichotomis; sepalis oblongis, obtusis, valvatis, pericarpiorum caudis longissimis, barbato-plumosis.

Habitat in Sirmore, *G. Govan, M.D.* In montibus Kamaunensibus legit *Robertus Blinkworth.* In Horto Calcuttensi floret Septembri et Octobri, fructificatque Decembri et Januario.

Frutex ramosissimus, latè scandens, supernè villis brevibus, copiosis cano-mollissimus. Caulis ramique graciles, 6-sulcati, obtusèque 6-angulares; *ramuli* subfiliformes. Folia opposita, patentia, petiolata, subbiternata, ferè palmaria; *foliola* ovato-cordata, acuminata, grossè subinciso-serrata, serraturis ovatis, cuspidato-acutis, suprà adpressè pilosula, rugosa, subtùs cano-villosa, 5-nervia, reticulata; inferiora ferè 3-pollicaria, 3-partita, lobis ovatis; reliqua subsessilia, pollicaria vel infrà, plùs minùsve 3-loba. Petioli graciles, villosi, valdè torti, cirrhiformes, suprà plano-sulcati; *communis* 3-pollicaris, basi vix dilatatus; *partiales* pollicares vel infrà. Pedunculi axillares terminalesque, bìs tèrve trichotomi, subpaniculati, folia subæquantes, cano-villosi, foliis floralibus aliquot stipati parvis, 3-foliolatis. Bracteæ infra divisuras parvæ, oppositæ, patentes, lanceolatæ, acutæ, inferiores sæpè trilobæ. Flores parvi, odorati, pallidè flavicantes, ternati, suffulti *pedicello* unguiculari, basi vel mediò bibracteolati. Involucrum et petala nulla. Sepala 4, oblonga, obtusa, semiunguicularia, extùs densè villosa, intùs pubescentia, æstivatione in alabastrum ovatum valvata. Stamina plura, sepalis parùm breviora; *filamenta* glabra, clavata; *antheræ* oblongæ, loculis extrorsùm dehiscentibus. Pistilla valdè numerosa, staminibus parùm breviora; *ovaria* minuta, glabriuscula; *styli* pilis longis, sericeis barbati; *stigmata* clavata, recurva, vix puberula. Pericarpia numerosa, parva, capitata, ovata, compressa, pubescentia, fusca, utrinque acuta, desinentia in caudam longam, barbato-plumosam, variè tortam, apice clavato nudam.

This plant was found on the mountains of Sirmore by Dr. Govan, and in Kamaon by Robert Blinkworth, one of the plant-collectors of the Honourable Company's Botanic Garden at Calcutta, where it was introduced by him and is now thriving luxuriantly. It is a very pretty shrub, producing a profusion of sweetly scented flowers.

Plate XCVIII. Fig. 1. Flower partly expanded. 2. Fascicle of flowers. 3. A detached flower. 4. The same dissected. 5. Stamens. 6. Pistil.

THOMSONIA.*

Spatha monophylla, cucullato-subconvoluta, oblonga. Spadix cylindraceo-clavatus, omninò obtectus, basi fœmineus, medio masculus, apice tuberculato-verrucosus. Squamæ nullæ. Ovaria monospora. Stylus longiusculus. Stigma valvatìm 3-lobum. Antheræ sessiles, fasciculatæ, 4-loculares; loculis tubulosis, vertice ad latera glandulæ convexæ utrinque poris 2 dehiscentibus.

Classis Linnæana: *Monœcia Polyandria.*

Ordo naturalis: *Aroideæ*, Juss.

Genus novum, *Caladio* et *Aro* proximum, ab ambobus discrepans spadice omninò obtecto, basi pistillifero, medio antherifero, apice verrucoso; antherarum loculis tubiformibus, apice ad latera glandulæ verticis dehiscentibus; stylis manifestis, stigmate 3-lobo, subvalvato.

Dixi in honorem viri colendissimi Antonii Todd Thomson, M.D. in Universitate Londinensi Professoris Materiæ Medicæ, botanices cultoris atque fautoris indefessi, scriptisque egregiis, præcipuè pharmacologicis præclari.

THOMSONIA NAPALENSIS. Tab. 99.

Habitat rariùs in sylvis montanis Napaliæ, florens mense Junii.

Planta erecta, carnosa, omninò lævis. Tuber magnum, carnosum, placentæforme, depresso-orbiculatum, 6—8-pollicare, pollices 2—3 crassum, epidermide glabriusculo, nigricante obtectum, intùs album, vertice comosum *fibris* pluribus, teretibus, crassiusculis, villosulis, pallidis. Folium magnum, radicale, solitarium, petiolatum, glaberrimum, 3-partito-decompositum, circumscriptione ovatum, ferè 2-pedale; *lobi* oblongi, profundissimè pinnatifidi, intermedius supra basin bifidus; *pinnæ* integerrimæ, lanceolatæ, acuminatæ, basi angustatæ, 2—3-pollicares, exteriores sensìm majores, extimæ nunc semipinnatifidæ, atrovirides, subtùs nervoso-venosæ, reticulatæ. Petiolus crassus, erectus, cylindricus, scapo similis, sed minor; *partiales* profundè sulcati, a pinnis decurrentibus marginulati. Scapus cylindricus, pedalis vel 2-pedalis, lævis, basi diametrum pollicarem emetiens, sursùm attenuatus, apice digitum minimum crassus, pallidè viridis, maculis magnis, purpureis variegatus, infernè laxè involutus *squamis* 2 erectis, membranaceis, rufescentibus, lineatis, oblongis, obtusis, interiore 8-pollicari, exteriore citiùs emarcescente, brevissimâ, 2-pollicari. Spatha terminalis, solitaria, erecta, levissimè incurva, 6-pollicaris, coriacea et crassa, ovato-cymbiformis, laxè convoluta, apice obtusa, subcucullata, marginibus rectis, subundulatis, extùs atroviridis, opaca, intùs e viridi-flavicans, minutìm reticulata. Spadix erectus, cylindricus, longitudine spathæ, digitum medium crassus, omninò obtectus, basi semipollicari fœmineus, indè usque ad medium, per spatium 3-pollicare masculus exteriore, denique parte 3-pollicari crassiore, clavato-oblongâ, obtusâ, densè obsitâ *tuberculis* verruciformibus, oblongis, obtusis, flavis, compressis, spongiosis, parallelis, inæqualibus, haud multùm prominentibus, pluribus nunc confluentibus in cristulas parallelas, inæquales. Ovaria numerosa, majuscula, ovata, lævia, foveolæ basis spadicis subimmersa, seriebus 15 spiralitèr digesta, 1-locularia, 1-sperma; *ovulum* ovatum, erectum, indusio molli carnoso obtectum. Stylus cylindricus, parùm incurvus, ovario vix longior. Stigma carnosum, subnutans, 3-lobum; *lobi* triangulares, acuti, margine tumidi, subvalvatìm conniventes, æquales: 2 laterales, 1 superior. Antheræ sessiles, densissimè aggregatæ et confertæ, 4 vel 5 stellatìm fasciculatæ, carnosæ, oblongæ, levitèr compressæ, pallidè flavicantes, vertice subtruncato, obtuso munitæ glandulâ oblongâ, transversali, parùm elevatâ, levitèr convexâ, minutè punctulatâ, adque latera hujus poris utrinque duobus, oppositis, tumido-marginatis; intùs 4-loculares, loculis angustissimis, tubulosis, geminatis, per paria oppositis, apice dehiscentibus. Pollen compositum e granulis magnis, ovatis. Fructus haud visus.

---

* This genus must not be confounded with *Thompsonia* belonging to the family of *Passifloreæ*, which Mr. Brown has kindly pointed out to me as having been named by him in the *Linn. Trans. v.* 13. *p.* 221. in honour of John Vaughan Thompson, Esq., and which Prof. DeCandolle has referred to *Deidamia* (*D. Thompsoniana*) in his *Prodr. vol.* 3. *p.* 337.

Plate XCIX. Fig. 1. Inflorescence in a very young state. 2. Spadix, with spatha detached. 3. 4. 5. Fascicles of anthers, (fig. 3. divided horizontally.) 6. Pistil. 7. The same enlarged. 8. Ovarium divided lengthways. 9. The same divided horizontally.

POLYGALA ARILLATA. Tab. 100.

Fruticosa; foliis oblongis, acuminatis, subtùs puberulis; racemis solitariis, terminalibus oppositifoliisque; calyce 3-sepalo; corollâ 3-petalâ, petalo intermedio difformi, 3-lobo, lobo medio cucullato, appendiculato; capsulâ reniformi; arillo magno.

Polygala arillata, Hamilt. apud Don. Prodr. Nepal. p. 199.

Habitat in montibus Napaliæ, florens mensibus Maji, Junii, fructus proferens Julio. In montibus Sillet vicinis, *De Silva*. Nilghiry, *Dom. Noton et R. Wight*.

Frutex magnus, ramosus. Truncus crassitie brachii, ligno albo, levi, cortice cinereo, spongioso. Ramuli longi, cylindrici, pubescentes, subscandentes. Folia alterna, patentia, membranacea, oblonga, acuminata, integerrima, basi acuta, 3—5- usque ad 8-pollicaria, ciliata, suprà glabra, opaca, subtùs pallida, costâ gracili, elevatâ, nervisque alternis, intra marginem arcuato-anastomosantibus, puberulis, reticulato-venosa; tenella villosa. Petiolus teres, pubescens, $\frac{1}{2}$-pollicaris, suprà profundè sulcatus. Stipulæ nullæ. Racemi terminales vel oppositifolii, lateralesve, solitarii, recurvati, brevè pedunculati, cylindrico-oblongi, attenuati, 5-pollicares, folia sæpiùs æquantes. Pedunculus brevis, subcarnosus, teres, pubescens; *rachis* irregularitèr subflexuosa, parùm complanata, ad insertionem pedicellorum tuberculata. Flores magni, flavi, alterni, subsecundi, inodori, insidentes *pedicellis* brevibus, teretibus, subclavatis, carnosis, suffultis *bracteolis* 2 lanceolatis, ciliatis, acutis, caducis. Calyx parvus, ovatus, 3-phyllus; *sepala* obtusa, ciliata; inferiora torsione pedicelli demùm superiora, ovata; superius (in flore expanso inferius) istis duplò majus, cucullato-concavum, attenuato-acutum, basi gibbosum. Corolla 3-petala, calyce multò major, $\frac{1}{2}$-pollicaris; *petala* 2 *lateralia* (*sepala interiora petaloidea*) obovata, obtusa, basi attenuata, ferè pollicaria, patentiuscula; *tertium* (e tribus coalitis conflatum) difforme, oblongo-ovatum, apice 3-lobum, lobis lateralibus ovatis, obtusis, intermedio carinato, cucullato, dorso cristâ carnosâ, lobulosâ aucto. Stamina 8, cucullo petali intermedii basi inserta eoque recondita; *filamenta* subulata, basi in phalanges duas connata; *antheræ* ovatæ, apice obliquè 2-poræ. Ovarium ovatum, levitèr compressum, læve, 2-loculare, 2-sporum; *ovulis* pendulis. Stylus clavatus, apice incurvo compressus. Stigma subinfundibuliforme, carnosum, deorsùm in processum oblongum, brevè productum. Capsula reniformis, compressa, utrinque retusa, lateribus gibboso-convexa, ferè pollicaris, purpurea, coriacea, venis elevatis, notata, 2-locularis, utrinque 2-valvis. Semen solitarium, globosum, atrum, pilis brevibus obsitum, magnitudine grani piperis nigri, apice dissepimenti adfixum, pendulum, basi munitum arillo magno, carnoso, rugoso, crasso, aurantiaco. Embryo minutus in basi perispermi magni, carnosi.

The figure of Rumphius's *Rex Amaroris* (Herb. Amb. vol. 2. tab. 41.) which is Lamarck's *Soulamea amara*, bears a considerable affinity to this plant, although it belongs undoubtedly to a distinct genus. I am not quite sure whether the plants from Sillet and the Nilghiry are identically the same with that from Nipal; perhaps they may prove three distinct species, although they are certainly very like each other.

Plate C. Fig. 1. Flower dissected. 2. Interior petal. 3. 4. Ovarium divided vertically and horizontally. 5. A small raceme of capsules. 6. A capsule detached. 7. Seed. 8. Arillus detached. 9. Seed removed from its arillus. 10. The same divided vertically.

END OF VOL. I.

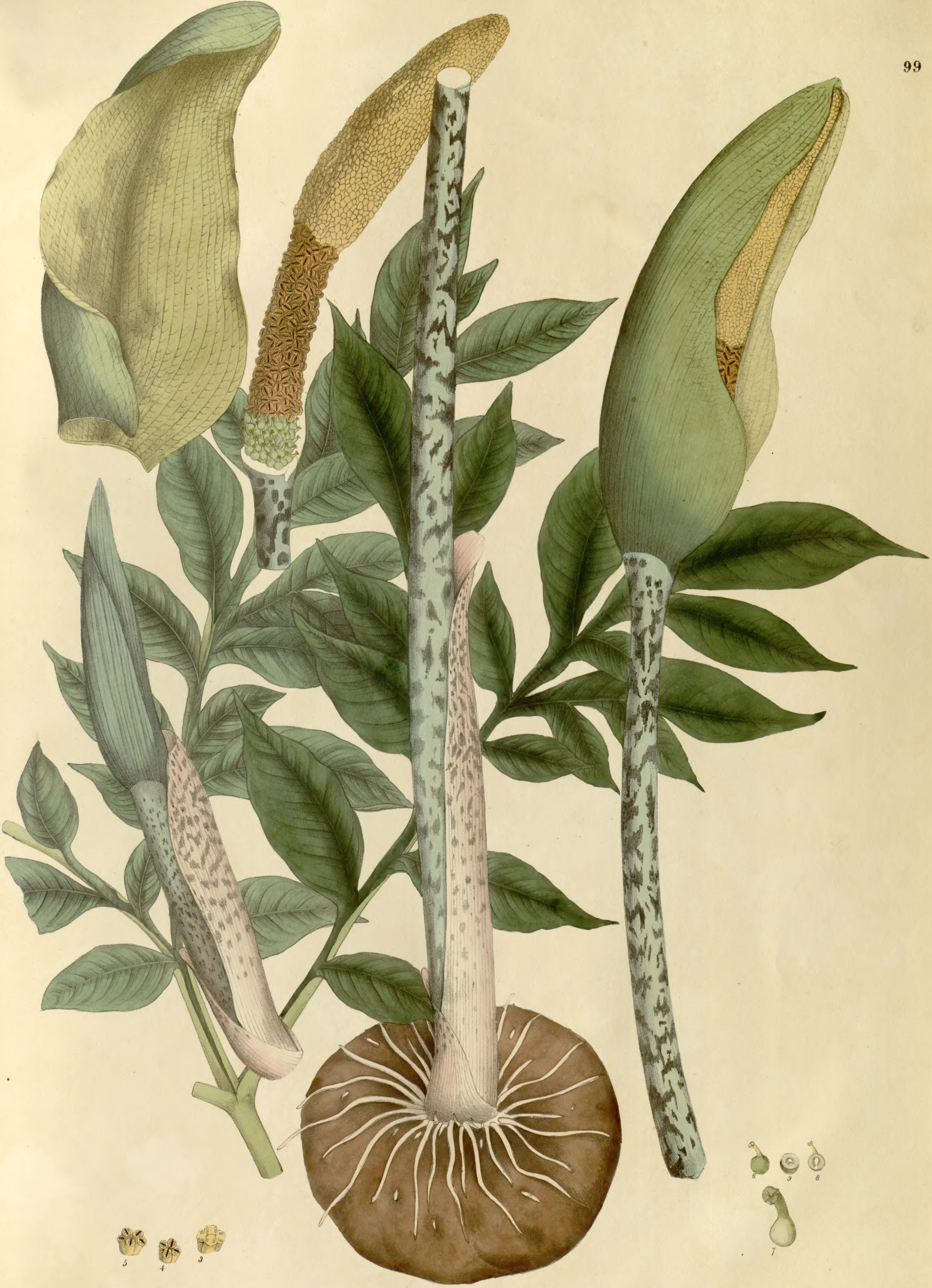
PRINTED BY RICHARD TAYLOR, RED LION COURT, FLEET STREET.

Gorachand del.^t

Printed by Engelman, Graf Coindet & Co

M. Gauci lith.

Clematis grata

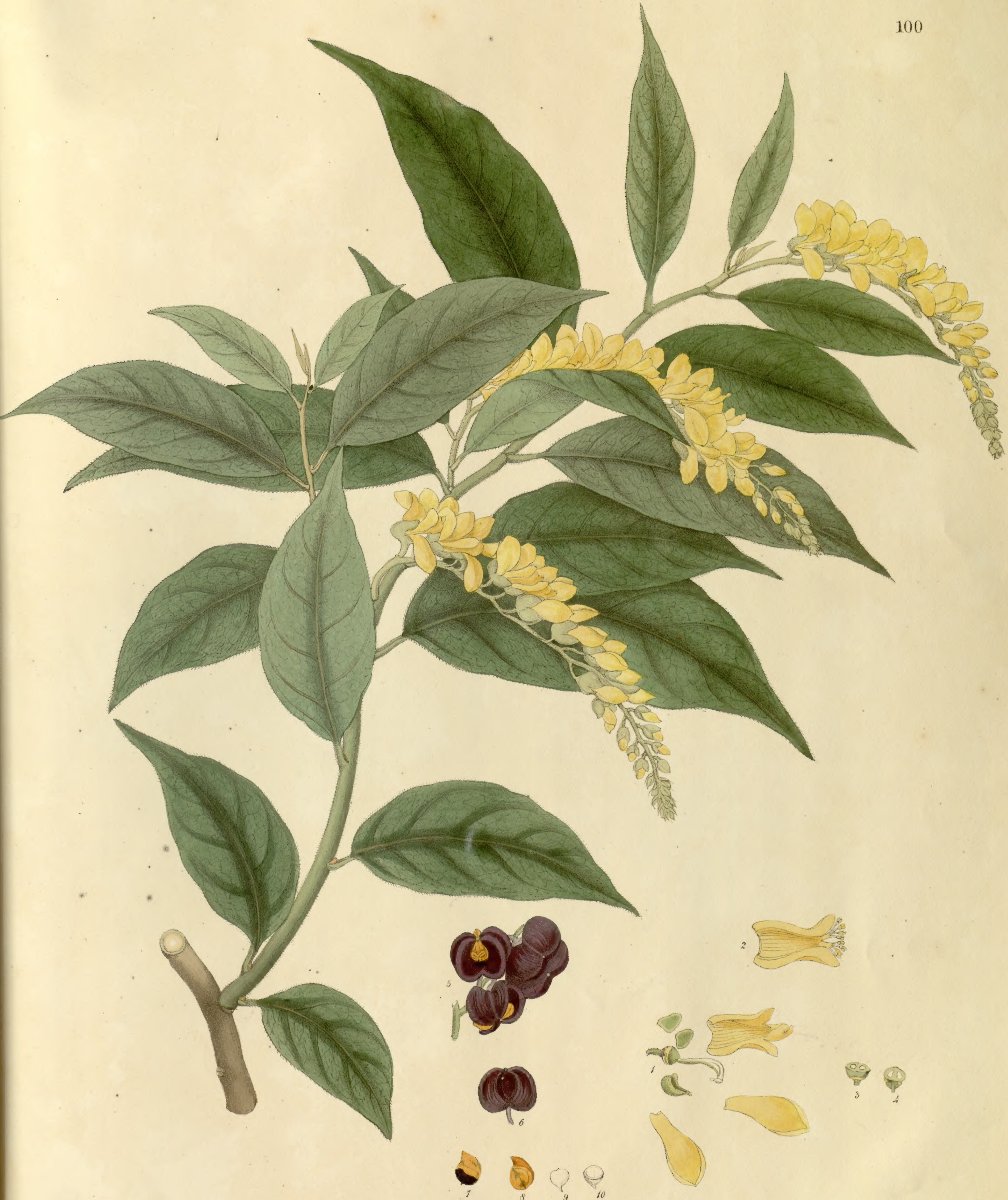


Vishnupersaud del.

Printed by Engelmann Graf Coindet & Co.

M. Gauci lithog

Thomsonia napalensis


1
2
3
4
5
6
7
8
9
10

Vishnupersaud del^t

Printed by Engelmann, Graf, Coindet & Co.

M. Gauci lith

Polygala arillata